Threatened Species Legislation and the Swift Parrot

by

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Declaration

This thesis contains no material which has been accepted for the award of any other degree or diploma in any tertiary institution, and to the best of my knowledge and belief, contains no material previously published or written by another person, except where due reference is made in the text of the thesis.

Signed

Robyn Allchin BSc. LLB.

15th October 2010

This thesis is an uncorrected text as submitted for examination.

For John Allchin, who inspired a love of the natural world.

(1924-2010)

Abstract

Swift Parrots (*Lathamus discolor)* are an endangered migratory species that breeds only in Tasmania. The foraging habitat available for the species is fragmented and in decline, and continued tree loss is reducing already diminished food resources. The species has been listed as threatened under the Federal *Environment Protection and Biodiversity Conservation Act* since 1999, and the Tasmanian *Threatened Species Protection Act* since 1995. The aims of this thesis was to assess how Federal and State threatened species legislation acts to protect the habitat of the Swift Parrot in Tasmania, how effective it is at achieving this outcome, and to make suggestions on possible improvements to the system. This was achieved through three case studies examining the removal of key foraging habitat of the Swift Parrot, *E. globulus* woodland and forest. The first case study, focusing on forestry operations in Tasmania through an examination of the Wielangta case, found that the Tasmanian Regional Forestry Agreement offers scant protection to threatened species. The second case study looked at a property development in Sandy Bay, which demonstrated the management of threatened species habitat is too onerous a task to be taken on by a local planning authority. The third case study of two associated infrastructure upgrades in south-east Tasmania referred to Environment Australia, demonstrated that the removal of 1000 trees crucial to a threatened species does not constitute a "significant impact" under the *Environment Protection and Biodiversity Conservation Act*, so long as the loss is offset. Additionally the number of large *E. globulus* removed since the enactment of threatened species legislation in Tasmania was measured from remote sensing imagery. Four hundred and ninety four trees were found to have been removed in the study area, with 87% of the loss in Kingborough and 75% in Hobart due to urban development. Recommendations include removal of the exemption provided to Regional Forest Agreements from the *Environment Protection and Biodiversity Conservation Act s* assessment and approval process, and reform to the definition of "significant impact" on threatened species to ensure developments are assessed appropriately. Furthermore, a regional planning authority should be establishment to alleviate part of the burden on local councils of threatened species management. Finally improvements should be made in the regulatory system to prevent unnecessary tree removal in urban areas

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Introduction

Australia's environment, with its iconic landmarks, ecosystems and largely endemic flora and fauna, is central to both the identity and economy of the nation, with the country deriving much of its wealth from its environmental assets (Australian Government 2010). Yet these natural resources are under increasing threat from a changing climate, the effects of present and past land management choices and a failure to learn from mistakes.

1.1 Achieving the Objectives of Natural Resource Management Legislation

Attempts to curb the detrimental impact of humans on natural resources and the environment date back to the late 18th and early 19th centuries in Australia, when inappropriate clearing was recognised as a problem (Jarman and Brock 2004). Yet, despite early attempts to preserve natural resources, and the development of modern environment legislation in the 1970's, Australia is still suffering from environmental degradation (Jarman and Brock 2004).

The relative success or failure of natural resource management legislation can be measured by regulatory performance, which measures the implementation and outcomes of intentions (Martin, Bartel et al. 2007). Regulatory performance is influenced by political context, attitudes of the regulators, and climatic, economic and societal variation (Martin, Bartel et al. 2007). In an example of poor regulatory performance, Bartel (2003) found that many landholders flagrantly disregarded native vegetation regulations and continued to remove vegetation without the appropriate permits (Bartel 2003). In two years there were 380 recorded breaches of the Act, affecting 95,000 ha (Bartel 2003). Furthermore, legal vegetation clearing continued, with clearing with permits accounting for 75,000 ha of lost vegetation (Bartel 2004). Bartel (2003) suggested the continuing high rate of land clearance resulted from the reluctance of regulators to refuse permits and prosecute offenders. On the rare occasions where prosecutions proceeded, the penalties were low, yielding little deterrence value. Graboksy and Braithwaite (1986) suggested that the small number of prosecutions for breaches of natural resource management legislation

were because regulators prefer to maintain a cooperative relationship with the industry they are regulating, compromising the intent of the regulations (Bartel 2003).

Martin et al. (2007) found insufficient resources were an impediment to achieving the objectives of natural resource management legislation. This is exacerbated when issues are managed over a number of jurisdictions (Martin, Bartel et al. 2007). Broidy and Prenzler (1998) attributed the problem to inadequacy in the legislation, lack of enforcement, particularly due to "industry capture", or both, resulting in continued degradation of natural resources.

1.2 Importance of Threatened Species

The term 'threatened' refers to the conservation status of a species as determined by a set of criteria, such as population distribution, size, trend, and the level of threat posed to the ongoing viability of that species. Species that are considered to be threatened are assigned a level of threat (Olsen 2008), ranging from rare (low threat) to endangered (high threat) in Tasmania (DPIPWE 2009).

Due to the geographical isolation of Australia, the continent supports many endemic and rare species and habitats (Bates 2006). Human influence has greatly increased the rate of extinction, up to 400 times the background rate, with scientists suggesting this could increase up to 10,000 times the background rate in the next few decades (Millenium Ecosystem Assessment 2005). Australia's record for habitat destruction and species extinction is one of the worst in the world (Bates 2006).

There are both utilitarian and intrinsic arguments for protecting threatened species (Burgman and Lindenmayer 1998). Utilitarian reasons include the consumptive and productive use values of species (Burgman and Lindenmayer 1998). Species also provide a service value through ecological functions and processes. These services include carbon fixation, competition, predation, storage and cycling of essential nutrients, pollination, photosynthetic fixation, and the breakdown and dispersal of organic and inorganic wastes and pollutants (Lindenmayer and Burgman 2005; New 2006; Mackey, Keith et al. 2008). Losses of biodiversity also have the capability of reducing ecosystems resilience (Wilcove and Master 2005). Furthermore, species

and natural environments are believed to have cultural, spiritual, experiential and existence values, as well as aesthetic, symbolic, recreational and tourist-based uses (Ehrlich and Ehrlich 1981).

1.3 Threatened Species Legislation

Wildlife and habitat protection has been a subject of statute and common law for hundreds of years, largely to protect the interests of upper class hunters. Since 1960 there has been legislation enacted to protect species and their habitats, even from hunting (Caughley and Gunn 1996). International conventions established to preserve wildlife have been around for decades, with mixed success (Caughley and Gunn 1996), Australia is signatory to a number of these international conventions including the Convention on Biological Diversity (CBD-1993). As a member of CBD the Australian Government has accepted the responsibility to conserve Australia's biological diversity, including its threatened species.

Threatened species legislation has processes for the production of lists of threatened species and communities. These lists now underpin much of the conservation effort at State, Federal and international level (Burgman, Keith et al. 1999). They are used to assess the potential for adverse affects on species, to assist in the determining of conservation priorities, and for reporting on the state of the environment (Possingham, Andelman et al. 2002). They educate the public, providing a clear social mandate (Possingham, Andelman et al. 2002) and draw the attention of administrators and funding bodies to species (Caughley and Gunn 1996). The advocates for listing threatened species under such legislation, point to figures indicating the prevention of the extinction of hundreds of species as a gauge of their success. Brooke et al. (2007) suggests such lists have reduced the number of bird species becoming extinct globally from a potential 19 to three, and hundreds of listed species are believed to have been saved from extinction in the United States. Other species and ecosystems also benefit as a result of efforts to save listed species (Schwartz 1999).

Threatened species legislation has its critics. The lists generated by this legislation are commonly used to set priorities for resource allocation for species recovery, to

determine reserve design, prevent development and exploitation, and determine the state of the environment, tasks for which they are ill-suited (Possingham et al. 2002). For example, a lack of effective regulatory protection against key threats can result in indefinite listing of a species, with no improvement in its conservation status (Doremus 1997). Under the oldest threatened species legislation the United States *Endangered Species Act* (1973), only 13 species of the 1300 ever listed have recovered (Mann and Plummer 1995) and less than 0.4% of species have been removed from the list, mostly as a result of extinction (Doremus 1997). This is also the case in Australia (Shields 2004), with a majority of delisting from threatened species legislation to date being attributed to an increase in information, or reclassification of taxa rather than an actual improvement in the status of a species (Caughley and Gunn 1996; Burgman 2004). Yet, these arguments focus solely on the recovery of species and fail to mention of the role the legislation plays at maintaining the species, and preventing further decline.

Other critiques of threatened species lists include the presence of a species on a list makes them more desirable for collectors, and more vulnerable to private land holders wishing to rid themselves of the potential burden of an endangered species on their land (Caughley and Gunn 1996). Furthermore, the listing process is expensive both in time and money and leaves a large number of species waiting to be considered, as the justification for listing requires a certain amount of information, and for many species, particularly invertebrates, it simply does not exist. As a result of this there is a distinct bias in threatened species lists toward large charismatic species (Jarman and Brock 2004), to the detriment of invertebrates for which threatened species legislation is considered to be of limited value (Hutchings 2004; Murphy and Nally 2004). Furthermore, governments admit that some species presently at risk may not be currently listed (Resource Planning and Development Commission 2003d). Other noted deficiencies of the listing of threatened species include variations in threatened status across jurisdictions, potentially resulting in a fundamental problem for setting landscape scale conservation priorities (Beeton, Buckley et al. 2006).

1.4 Importance of Case Studies

The application of the same legislation and system to different threatened species is likely to produce a range of results. For this reason case studies can be valuable tools in presenting the successes and failings, and strengths and weaknesses, of legislation when they are put into practice (Murphy and Nally 2004). The same framework will not work for every species, so by looking at the impact of the legislation on a single species it is possible to determine what needs fixing, what is working, and the reasons why. The results of case studies can then in turn be used to assist in the management of that species and, where applicable, species like it.

1.5 Aims

The aims of the project are to assess how Federal and State threatened species legislation acts to protect the habitat of a listed threatened species, the Swift Parrot (*Lathamus discolor)* in Tasmania, how effective it is at achieving this outcome, and to make suggestions on possible improvements.

1.6 Thesis Structure

Chapter one has discussed the literature on compliance with natural resource management legislation in the landscape, the reasons why threatened species are an important part of ecosystems around the world, and the impact of threatened species legislation on the species, as well as the aims of this study. The second chapter will look at the ecology and conservation status of the Swift Parrot. Chapter three will look at the legislative framework in place for threatened species in Tasmania, and examines how the Swift Parrot is affected by these Acts. The fourth chapter will use three case studies to look at the way legislation is used in Tasmania across various land tenures, and by different levels of government, where development conflicts with Swift Parrot habitat maintenance. The fifth chapter looks at the removal of mature *E. globulus* (Swift Parrot feeding habitat) due to urban development since the enactment of threatened species legislation in the municipalities of Hobart and Kingborough. The final chapter discusses the findings of this thesis, and suggests ways in which there could be improvements in legislation and administrative processes to ensure a future for the Swift Parrot

Chapter 2 The Swift Parrot (*Lathamus discolor*)

2.1 Description of Species

The Swift Parrot (*Lathamus discolor*) (Shaw 1790) is a small fast flying parrot endemic to south-eastern Australia (Brown 1989). It posses a streamlined body, with slender wings and tail enabling agile manoeuvring without the need to decrease speed (Gaffney and Brown 1992). The average adult reaches 25 cm in length, with an average wingspan of 12 cm (Brown 1989), and weighs 75grams (Brereton 1998). It can be identified by its distinctive bright grass green plumage, prominent red forehead, face, throat, chin and shoulders bordered by yellow (Figure 2.1) (Brown 1989; Higgins 1999).

Figure.2-1 – Adult Swift Parrot (*Lathamus discolor*) feeding, courtesy of Chris Tzaros, Birds Australia (2010)

It also has red at the carpal joint and red patches on the tertials (Sharland 1945; Higgins 1999). Its crown, primary and secondary coverts are bright blue; in flight one can see the distinctive underwing-coverts which are bright red and its reddish brown slender pointed tail (Higgins 1999).

The Swift Parrot is monotypic being the only member of the genus *Lathamus* (Higgins 1999). Forbes (1897) thought it to belong to the family of broad-tailed parrots *Platycercinae*. He identified similarities in anatomical features including the small non-protruding bill, and structure of the skull, feet, legs and pelvis (Forbes 1897). Although morphologically there are similarities between the Swift Parrot and lorikeets, such as their common brush tongue morphology, it is thought this is due to convergence as opposed to descent (Christidis, Schodde et al. 1991; Gartrell, Jones et al. 2000; Gartrell 2001). The Swift Parrot is believed to have evolved from granivorous ancestors to become a specialized nectar and pollen-feeder (Christidis, Schodde et al. 1991; Gartrell 2000). Schodde (pers. comm. in Brown 1989) maintains that Swift Parrots developed a niche in the temperate forests, whereas the lorikeets are of tropical origin, more recently dispersing into temperate regions.

2.2 Historical Records

The Swift Parrot was first described in "The Voyage of Governor Phillip to Botany Bay" in 1789. In the late 1830's Gould described the species as quite "abundant in all the gum forests of Tasmania" and "very common" in and around the shrubberies of Hobart (1848). During the early 1900's there were reports of the species wintering in peppermint gums in suburban Adelaide, South Australia, (Brown 1989), and the central Coast of Queensland (Hindwood and Sharland 1963) Large flocks were also noted in south east ranges of NSW in the late 1930's (Hindwood and Sharland 1963) In 1945 Sharland described the species as "very common," more so than the Musk Lorikeet *(Glossopsitta concinna)* and the Little Lorikeet (*Glossopsitta pusilla).* Yet despite this, declines were already noted by Mathews in 1917, where he described them as "rarely seen in New South Wales:, and "by no means now as plentiful as previously in Tasmania" (Brown 1989).

2.3 Distribution and Range

The Swift Parrot is unusual in that it is one of only three migratory parrots found in the world and one of only two fully migratory parrots (Higgins 1999).

2.3.1 Breeding Season Distribution

Swift Parrots are only known to breed in Tasmania (Brown 1989) (figure 2), migrating to the island as early as mid-August, before returning to the mainland to winter in February (Hindwood and Sharland 1963; Brown 1989; Brereton 1998; Higgins 1999; Gartrell 2001). Movement across the State is unpredictable, but tends to follow a north-south direction (Brown 1989; Higgins 1999).

Figure .2-2 – Breeding and Non-breeding range of the Swift Parrot (*Lathamus discolor*) taken from Brereton (1998).

During the breeding season the Swift Parrot is restricted to an area less than 500 km², the environmental domain of which in eastern Tasmania lies between Dover and Binalong Bay, and includes the Tasman and Forestier Peninsulas and Maria and Bruny Island (Brereton 1997; Brereton, Mallick et al. 2004). It seldom extends

farther inland than 5 km from the coast but maybe found as far as 20 km inland between Sorell and Marion Bay (Brereton 1997; Higgins 1999). In southern Tasmania the species have been recorded on the eastern shore of the D'Entrecasteaux Channel, around the townships of Kettering, Snug, Margate, and Woodbridge, in Hobart suburbs, particularly Mt Nelson, and offshore islands, including Maria Island and Bruny Island (Brown 1989; Higgins 1999). Breeding Swift Parrots have been identified in the Wielangta Forests, North Bruny Island, Maria Island, Runnymede, Buckland and in the Wellington Ranges up to 500m (Brereton 1997; Blakers and Crawford 2008).

A small population of Swift Parrots, of less than 10%, is thought to exist on the north coast of the State coast between Smithton and Launceston (Brown 1989; Bryant and Jackson 1999). Over the last 100 years the natural range of *E. globulus* has been extended through artificial planting (Brereton 1998) particularly in northern-western Tasmania which now has 3% of the *E. globulus* population of Tasmania (Mallick, James et al. 2004). As a result small numbers of Swift Parrot have been sighted in and around Devonport, Burnie, Ulverstone, Penguin, Wynyard and the Gog Ranges (Brown 1989). When *E. globulus* flowering is abundant in the south-east, about 10% of the population breeds on the north-west coast, whereas in poor flowering years in the south-east up to 50% of the population can be found on the north-west coast, where flowering is thought to be more consistent (Brown 1989; Mallick, James et al. 2004).

Very little breeding is believed to take place in central and western Tasmania. A lack of breeding may be attributed to the fact *E. globulus*, is not the dominant species in the area (Brown 1989).

2.3.2 Post Breeding Distribution

From mid-December the Swift Parrot is seen dispersing from its breeding grounds in a westerly direction in search of new food sources, particularly when *E. globulus* is past its peak bloom (Brown 1989). Post breeding habitat is primarily in the wetter forests of western and northern Tasmania. Movement across the State continues until late February when the species migrates across the western side of Bass Strait

(Brown 1989), and on occasion across the east via Flinders Island (Mellor and White 1913; Hindwood and Sharland 1963).

2.3.3 Winter Distribution

Swift Parrots winter on the south-east corner of the mainland of Australia (Hobbs 1961; Brown 1989). They are most commonly sighted in Victoria and New South Wales; 90% of the population is thought to winter in these two states (Higgins 1999). Yet they have also been recorded in the Australian Capital Territory, southern Queensland and the south-eastern tip of South Australia (Hindwood and Sharland 1963; Brown 1989; Brereton 1996; Brereton 1998; Higgins 1999; The Swift Parrot Recovery Team 2003; Stewart 2005). During winter the Swift Parrot is semi-nomadic, commonly found in dry forests to the north and west of Melbourne, as well as the inland slope of the Great Dividing Range in Victoria and New South Wales (Brereton 1998; Kennedy and Tzaros 2005), following the food supply (Hindwood and Sharland 1963).

2.4 Population Size

It is hard to determine the numbers of the Swift Parrot as it is a small highly migratory and nomadic bird species, which uses breeding sites intermittently (Webb 2008). Brown (1989) located an estimated 1320 breeding pairs in the 1987/89 breeding season. Brereton (1996) identified approximately 940 pairs in 1995/96. Garnett and Crowley (2000) estimated there to be around 2000 adults (range 250-2500) and declining. Winter counts also suggested a decline in the Swift Parrot population, with a reduction from 2.4 birds per survey in 2000 to 0.55 in 2007 (Swift Parrot Recovery Team 2008) (figure 2.3). Prior to the 1980s there is only anecdotal evidence that suggests a population in decline (Hindwood and Sharland 1963). As mentioned it was described in 1945 by Sharland as “very common”, but it is believed to have become less abundant in the of the Tasmania since the 1960’s (Brown 1989; Gaffney and Brown 1992).

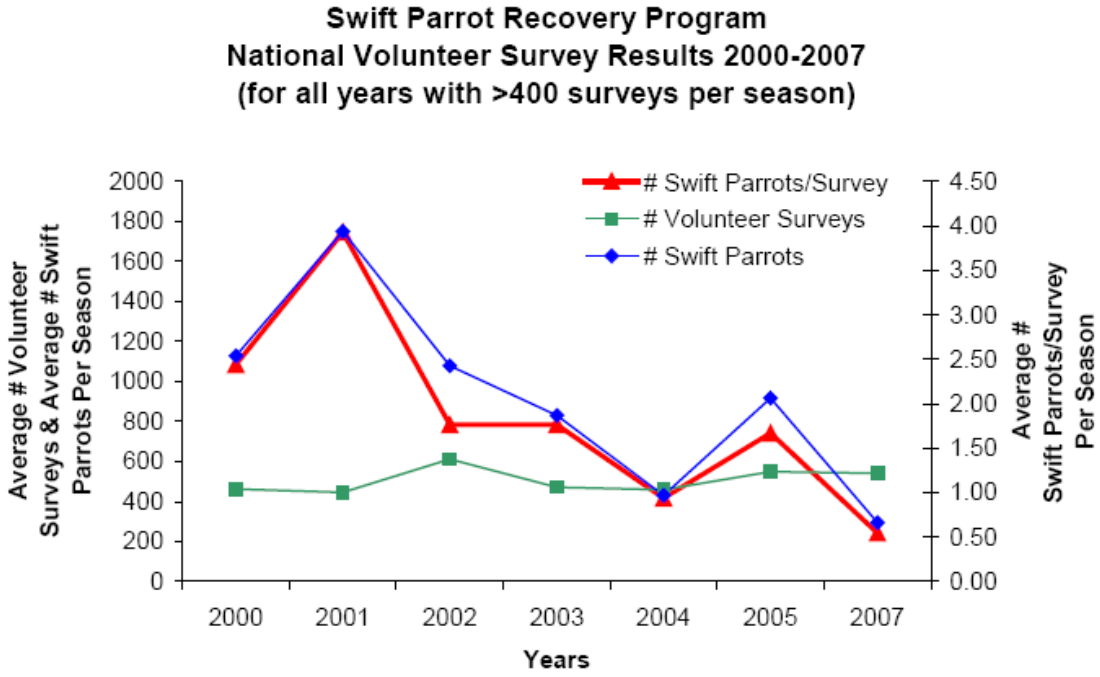

Figure .2-3 – National Volunteer Survey Results from 2000-2007 seasons taken from Blakers and Crawford (2008).

Additionally once a frequent visitor to Sydney at the start of the 20th century, with the exception of population irruptions in 1938 and 1958 due to decreased food supply in Victoria, it was infrequently sighted after the 1930's (Hobbs 1961; Hobbs and Kaveney 1962; Hindwood and Sharland 1963; Forshaw 1969). Declines have also been noted in South Australia since the 1940's where the species is now infrequently reported (Houston 1982).

2.5 Breeding Habitat Requirement

The Swift Parrot only breeds in Tasmania. Breeding success depends on the presence of flowering *E. globulus* and *E. ovata* as foraging resources, and senescent eucalypt forest, for nesting habitat (Webb 2008).

2.5.1 Foraging Habitat

Foraging during breeding season is restricted to a limited range of *E. globulus* in open, grassy dry sclerophyll forest and woodland, *E. ovata* forest and woodland, or where these species occur as co-dominant or subdominant. Recently the species has

been seen inhabiting wet sclerophyll forest as well, with a majority of the population being found in wet eucalypt formations in the Huon districts forests between 2006 and 2008, which may be related to drought conditions (Forestry Tasmania 2009). The nectarvorous Swift Parrot's food intake during this period is almost exclusively the nectar and pollen of *E. globulus*, which accounts for up to 80% of their diet, supplemented by the Black Gum or *E. ovata*, particularly when the flowering of the Tasmanian *E. globulus* is poor, or migration precedes its flowering (Brown 1989; Gartrell, Jones et al. 2000; Gartrell 2001; Swift Parrot Recovery Team 2001; Mallick 2003). The two species are responsible for up to 91% of the breeding season diet of the Swift Parrot (Brown 1989).

There is much circumstantial evidence for a relationship between successful reproduction in Swift Parrots and flowering intensity of *E. globulus* (Brown 1989; Brereton 1997; Gartrell 2001; Swift Parrot Recovery Team 2001; Tzaros 2002; Mallick 2004) and to a lesser degree *E. ovata* (Hingston 1997). Brown (1989), in an experimental study, found that that the large amount of nectar produced by *E. globulus* is necessary to provide sufficient energy to stimulate reproduction in the species. Furthermore in years of profuse flowering there is recruitment of fledglings to the population of birds migrating to the mainland (Mallick 2004). Conversely, when flowering is poor the reproductive success of the Swift Parrot is believed to be low (Tzaros 2002; Mallick 2004).

Most foraging records are from remnant stands of less than 1 ha (Brereton 1996). Swift Parrots also use isolated trees in suburban and agricultural settings (Brereton 1997). *E. globulus* and *E. ovata* generally produce flowers when they have a diameter greater than 40 cm (Mallick, James et al. 2004), and flowering increases steadily up to 99 cm in *E. globulus* (Brereton, Mallick et al. 2004). Large suburban *E. globulus* and *E. ovata* have been found to be particularly important for the breeding diet of the Swift Parrot (Brereton, Mallick et al. 2004; Piech 2008). The species actively selects large trees for foraging purposes, as the larger the tree the greater the flowering intensity, flowering frequency, and the greater the nectar production per flower (Brereton, Mallick et al. 2004). This is particularly true of large suburban trees, which produce a greater abundance of flowers than their edge or bush counterparts due to their greater canopy cover (Brereton 1997; Piech 2008).

It is thought that such suburban trees are not just a secondary food source (to bushland) but rather are likely to constitute an important foraging habitat in their own right (Ozolins, Brack et al. 2001; Piech 2008).

Sap sucking Psyllids and their defensive shield, lerps, are also considered important dietary items for the Swift Parrot, providing an important source of protein before laying and when *E. globulus* has a poor flowering year (Hindwood and Sharland 1963; Brown 1989; Higgins 1999). Swift Parrots are also known to occasionally feed on the ground amongst native grasses (Hindwood and Sharland 1963; Higgins 1999), and to opportunistically take seed, honeydew and ripe fruit, both wild and cultivated (Hindwood and Sharland 1963; Brown 1989), small insect larvae, fallen lerp (Barker and Vestjens 1989; Tzaros and Davidson 1996), and glucose mixtures in domestic gardens (Brown 1989).

2.5.2 Nesting Habitat

For foraging habitat to be of any value to the Swift Parrot during the breeding season it must be within approximately 7 km from nesting sites (Brereton 1998; Higgins 1999; Gartrell 2001; Koch 2007). Swift Parrots nest in hollows in eucalypts, mostly in large *E. obliqua, E. pulchella, E. delegatensis, E. ovata, E. regnans* and *E. globulus* trees (Brereton 1997; Higgins 1999; Koch 2007; Webb 2008; Threatened Species Section 2009). *E. obliqua* supports the highest number of potential hollows (28/ha) (Munks, Wapstra et al. 2007). In areas severely affected by fire, hollows suitable for nesting will form in smaller trees (Brown 1989). Voogdt (2007) found that the presence of multiple hollows is a more important characteristic for nest selection for the Swift Parrot than the species of the tree, as the species nests in loose colonies (Brereton 1997; Brereton 1998).

Swift Parrots show a distinct preference for hollows with a mean entrance diameter of between 6 and 14 cm, in trees with a diameter at breast height greater than 0.7m (Brown 1989; Brereton 1997; Brereton 1998; Higgins 1999). Webb et al. (2007) noted Swift Parrot nest in trees with a mean diameter of 100 cm (range 33-202 cm) with a mean of 8.6 hollows (range 2-22). The mean height above the ground of preferred hollows has been estimated to be 15 m (range 6-35 m) (Brereton 1997).

Hollow-bearing trees are usually between 120-180 years of age, and hollow abundance is usually positively associated with tree diameter, age and signs of senescence (Voogdt 2007).

Most breeding is thought to occur in patches greater than 100 ha of mature *E. obliqua* shrubby or grassy forest or *E. globulus* grassy forest (Brereton 1997; Higgins 1999). Nest sites are often located on north to north-east facing steep hillsides or ridge lines (Brown 1989; Brereton 1997; Higgins 1999), but rarely in artificial sites or urban areas (Hindwood and Sharland 1963; Brown 1989; Higgins 1999). A recent breeding population survey found 71% of nest sites were on unreserved land, and 66% were located on private property (Threatened Species Section 2009). Breeding pairs are thought to return to the same area each year and nest sites are sometimes re-used, but at irregular intervals (Brown 1989), and only when a reliable food source is nearby (Brereton 1996; Brereton 1997; Brereton 1998). Nest densities are thought to be around 0.7-0.8 per ha (Webb, Holdsworth et al. 2007).

2.6 Conservation Status and Reason for Listing

At present the Swift Parrot is listed as endangered (C2b) under both the Commonwealth *Environment Protection and Biodiversity Conservation Act* (1999) (*EPBC Act*) , and under schedule 3 of the Tasmanian *Threatened Species Protection Act* (1995) *(TSP Act).* It is likewise listed under the respective New South Wales, Victorian and South Australian threatened species legislation. It qualifies for this status by numbering between 250-2500 individuals and probably declining (Garnett and Crowley 2000), and by having suffered a considerable loss of habitat in its breeding and wintering range, exhibiting an area of occupancy less than 500 km². It has also been identified as a priority species under the Tasmanian Regional Forest Agreement (RFA) (Commonwealth of Australia 1997), and meets the criteria set out by the World Conservation Union (IUCN) to be considered an endangered species (IUCN 2009)

Its two key vegetation communities for foraging in Tasmanian are likewise listed as under threat. *Eucalyptus globulus* dry forest and woodland is considered threatened,

and *Eucalyptus ovata* forest and woodland is listed as endangered under the *Nature Conservation Act* (2000) (Tas) (*NCA)*.

2.7 Present Threats and Limiting Factors

2.7.1 Habitat Loss

Destruction, fragmentation, alteration of age structure of both foraging and nesting habitat through forestry operations, clearing for agriculture, urbanization and firewood collection are the key threats to the ongoing viability of the Swift Parrot (Brown 1989; Brereton 1997; Brereton, Bryant et al. 1997; Higgins 1999; Garnett and Crowley 2000; Swift Parrot Recovery Team 2001; Blakers and Crawford 2008). The threat of habitat loss is further compounded by the fact it has occurred in both the breeding range and over-wintering range (Brereton 1997; Mac Nally and Horrocks 2000; Gartrell 2001; Blakers and Crawford 2008).

Within the Swift Parrot breeding range, the foraging behaviour of the species is heavily influenced by the fragmentation of *E. globulus* stands, and the altered age structure and growth structure of the species due to clearing and logging (Brereton, Mallick et al. 2004). In the south-east bioregion of Tasmania alone there only remains an estimated 5920 ha of *E. globulus* of the pre-1770 17,000 ha. Only 1040 ha of *E. ovata* remain of the original 27,000 ha (Swift Parrot Recovery Team 2001). Due to the variable flowering patterns of *E. globulus* in both time and space, only parts of the Swift Parrot's remaining breeding range are available as a food source. Within their breeding range an estimated 70% of the habitat used by the Swift Parrot has been cleared since European settlement (Brown 1989; Brereton 1996). Only 18% of the *E. globulus* dry forest within the breeding range is protected through the CAR reserve system, a majority of which is in Maria Island National Park (Swift Parrot Recovery Team 2001). What remains of these forests is highly fragmented, with most patches less than 1 ha in size. Clearing continues. Between 1996 and 2001, 370 ha of grassy *E. globulus* was cleared (Swift Parrot Recovery Team 2001) and a further 0.7% was lost from 2001-2006 (Forestry Tasmania 2007)

The Swift Parrot has shown a distinct preference for suburban, parkland and agricultural shelter belt trees of *E. globulus*, due to their higher levels of nectar

production (Sharland 1945; Sharland 1981; Brereton, Mallick et al. 2004; Mallick, James et al. 2004; Piech 2008). Yet ongoing clearance for development within suburban fringes and along the south-east coast of the State combined with removal of larger trees for safety reason is reducing access to this valuable food source (Brereton 1997; Piech 2008). For example within the Hobart suburb of Mt Nelson, a conservative estimate suggested a third of all *E. globulus* or *E. ovata* trees had been removed within the past decade (Piech 2008).

Logging for forestry, and to a lesser extent firewood collection, affects nesting habitat by removing old hollow bearing trees, reducing canopy cover, creating fragmentation, and reducing the recruitment of hollow bearing trees by altering the age structure of the forests (Garnett and Crowley 2000; Swift Parrot Recovery Team 2001; Blakers and Crawford 2008). Loss of hollows is a major threat to hollow dependent species, including the Swift Parrot (Koch 2007), as it takes between 120-180 years for a eucalypt to be able to form hollows, and logging activities still target these older trees (Koch, Munks et al. 2008). A lack of hollows is unlikely to be a limiting factor to the species in large stands of old growth forest, but in highly fragmented areas it may limit breeding density in good flowering years. This is particularly relevant in years where flowering is limited to a few locations (Voogdt 2007).

Habitat loss has also been extensive across non-breeding ranges as well. In excess of 85% of box-ironbark forests having been cleared in Victoria and New South Wales (Traill 1993; Mac Nally and Horrocks 2000). Only 3% of the box-ironbark habitat is protected within reserve boundaries in Victoria, and only 5% in New South Wales (Environment Conservation Council 2001; Swift Parrot Recovery Team 2001).

2.7.2 Adult Mortality

The second major threat to the species is adult mortality due to collisions with man-made structures (Pfennigwerth 2008). As a majority of the species habitat in Tasmania coincides with its largest city, collisions with windows, chain link fences, and vehicles have become a regular cause of death of the Swift Parrot (Brown 1989; Brereton 1996; Gartrell 2001; Pfennigwerth 2008). On average, 19 injured birds are

rescued each year in Tasmania, with only four returned to the wild (Pfennigwerth 2008). A majority of deaths are attributed to trauma due to collision (Gartrell 2001). In total 143 birds were killed by collisions between 1987 and 2008 (Holland 2008), up to 23 in one season (Holland 2008). It is thought the actual number of mortalities exceeds this, with as few as half handed into the Parks and Wildlife Service (Pfennigwerth 2008). These mortalities are removing a significant portion (between 1 and 10%) of the adult breeding population of the Swift Parrot per annum (Gartrell 2001). This problem will presumably be exacerbated should the population become more reliant on breeding habitat in urban areas.

Natural predation by raptors and cats has also been recorded with the remains of Swift Parrots found in 57% of Peregrine Falcon (*Falco peregrinus)* eyries surveyed, as well as in the nests of Brown Goshawks (*Accipiter facciatus*) and sparrowhawks (*Accipiter cirrhocephalus*). Swift Parrots are thought to be particularly vulnerable to predation after becoming intoxicated from consuming too much nectar (Sharland 1945; Sharland 1981). There is also evidence of nest predation by the laughing kookaburra (*Dacelo gigas*) (Brown 1989; Brereton 1996; Gartrell 2001).

There is a possibility that the species is illegally trapped for aviculture, or killed by orchardists (North 1912; Brown 1989; Garnett 1993; Higgins 1999).

2.7.3 Climate Change

Temporal variation in flowering of *E. globulus* is thought to restrict the breeding of the Swift Parrot with the species producing sufficient flowering for breeding in three out of ten years (Garnett and Crowley 2000; Jenni and Kerry 2003). Flowering is poor in drought years, which have become more frequent since 1978. Increased spring temperatures can cause early flowering. However, the Swift Parrot appears able to adjust its migratory schedules, despite earlier fears (Gartrell 2001). Blakers and Crawford (2008) note four destructive fires in Swift Parrot habitat between 2005 and 2008. Such fires may become more frequent with climate change.

2.7.4 Diseases

Beak and feather disease (Psittacine Circovirus) is listed as threatening process under the federal *EPBC Act*. Although there are recorded cases in the Swift Parrot population (Raidal, McElnea C.L. et al. 1993), there is no evidence to suggest it is causing mortality or recognisable disease in the population (Gartrell 2001).

2.7.5 Competition

Increased competition for both food and nesting sites is another threat to the viability of the Swift Parrot population. Competition for their limited food source comes from other large nectivores (Department of Environment 2005) and the introduced large earth bumblebee (*Bombus terrestris*) (Hingston 1997; Hingston and McQuillan 1998; Tzaros 2003). Additional pressure on the Swift Parrot comes from competition for nest hollows by other bird species, including; starlings *(Sturnus vulgaris)*, tree martins *(Petrochelidon nigricans*), owlet nightjars *(Aegotheles cristatus)*, and blue winged parrots (*Neophema chrysostoma)*. Such competition may be particularly problematic along forest edges (Brown 1989; Swift Parrot Recovery Team 2001; Koch 2007).

2.8 Conclusion

The Swift Parrot population is at best stable and probably declining in number. The species is highly specific in its choice in diet and habitat selection, which increases its vulnerability to extinction. This chapter has demonstrated a large number of threats to the Swift Parrot, the most prominent of which is the loss of habitat in its foraging and breeding range in Tasmania. This highlights the need to protect grassy *E. globulus*, particularly in its key breeding areas in south-eastern Tasmania. Yet with clearance continuing across all land tenures, current protection may be ineffective. The nature of this protection is discussed in the next chapter.

Chapter 3 Legislative Framework

This chapter aims to set out the legislative framework that is designed to protect and promote threatened species in Tasmania. It will begin by discussing the Federal *EPBC Act*. This to be followed by a look at a variety of pieces of legislation in place in Tasmania and the tools they provide to protect threatened species and their habitat. Throughout this chapter there will be a brief overview as to how the Swift Parrot and its habitat have interacted with these Acts since their inception.

3.1 *Federal Legislation*

The Australian Constitution fails to delegate management of the environment. This means primary responsibility for the regulation of impacts on the environment falls to the States. As the Commonwealth has no specific power in relation to the environment it relies on other constitutional powers, such as external affairs (s51(xxix)). For example, international environmental treaties made under this power (e.g. Convention on Biological Diversity) have enabled the development of the key piece of federal legislation related to the protection and management of the environment, the *EPBC Act*.

3.1.1 Environment Protection and Biodiversity Conservation Act (1999) (Cth)

According to the judgement in *Minister for the Environment and Heritage v Queensland Conservation Inc* (2004) the enactment of the federal *EPBC Act* in 1999 represented an attempt to consolidate and clarify the Commonwealth's responsibilities for environmental protection within its borders. The Act includes the protection of the environment, especially those aspects that are considered matters of national environmental significance as part of the implementation of Australia's obligation as a party to international environmental agreements and treaties.

3.1.1.1 Listing Threatened Species and Ecological Communities

Part 13 of the Act provides for the listing of threatened species at a national level as either extinct, extinct in the wild, critically endangered, endangered, vulnerable, or conservation dependent. There are 427 listed fauna and 1343 listed flora taxa under the *EPBC Act* (Department of Environment 2010). Similarly the Minister may create a list of threatened ecological communities under section 181 as critically endangered, endangered, or vulnerable. There are 48 such communities (Department of Environment 2010).

By 2008 153 Tasmanian species and ecological communities were listed under the Act including the Swift Parrot which is listed as endangered (Tasmanian Planning Commission 2009). The species has been nominated to have its listing upgraded to critically endangered under the Act (Brown 2010). No Tasmanian habitats that relate to the Swift Parrot have been listed as a threatened ecological community under this legislation.

3.1.1.2 Assessment and Approval Process

Actions that are deemed likely to have a significant impact on matters of national environmental significance are subject to an assessment and approval process by the Commonwealth Minister for Environment, unless they are subject to a legislative exemption. Matters of national environmental significance include threatened species and ecological communities listed within the Act (Part 3). The process involves the referral of a proposed development or activity by the proponent, State or Federal Government, a Commonwealth agency or the Minister for the Environment. The Minister decides whether the proposed activity is a controlled action, not a controlled action or not a controlled activity so long as it is carried out in a specified manner. If the proposal is found to not be a controlled action then there will be no assessment process and the proponent cannot be prosecuted for subsequent damage to the matters of national environmental significance. Once a proposal is deemed to be a controlled action it will be subject to an assessment process which determines the potential impacts. The Minister may then decide to reject the project, or approve

it conditionally or unconditionally. The decision must not be inconsistent with Australia's obligations under the Convention on Biodiversity, Apia Convention or Convention on Illegal Trade of Endangered Species, or a threat abatement of recovery plan in place under the legislation (s139). Upon approval the Minister for Environment may impose a number of conditions in order to allow the proposal to proceed if they are satisfied it is necessary in order to protect a threatened species. These conditions may include periodic environmental auditing, financial deposit or bond, protection of matters of national environmental significance, or the establishment of a reserve area to offset the loss caused by the controlled action. If approval is granted the Minister maintains the right to revoke that approval should they find there has been a significant impact on a matter of national environmental significance due to a breach of a condition or the original approval, or the impact was not identified in the initial assessment process, but subsequently became apparent. The Act makes it an offence to proceed with a controlled action without prior approval, punishable by fines and imprisonment.

The Swift Parrot is the most referred species under the Act (Saunders 2005). Before 2005, there were 58 referrals related to the Swift Parrot. Nine of these projects required no approval so long as they were conducted in particular manner, no projects were rejected, and the remainder were deemed to require ministerial approval in order for the project to go ahead. The five year assessment of the *EPBC Act* indicated that only 0.5%, or two referrals, were rejected outright (Macintosh and Wilkinson 2005).

3.1.1.3 Regional Forest Agreements

Section 38 of the *EPBC Act* states that the assessment and approval process does not apply to a RFA forestry operation "that is taken in undertaken in accordance with an RFA." The legislative intent of this section is to further the objects of the *EPBC Act*, through the RFA process. RFAs are intended to manage forest resources by implementing effective environmental conservation and providing economic security to the forestry sector (Commonwealth of Australia 2009). Environmental protection under

a RFA depends on the establishment of a Comprehensive, Adequate and Representative (CAR) reserve system along with ecologically sustainable forest management systems (cl.19). The CAR system provides for the designation of some forest areas as reserves that exclude forestry operations. The idea of the system is that the reserves are comprehensive enough to include a full range of forest communities across the State, that they adequately ensure the level of represented communities is broad enough to ensure forest populations, species and communities remain viable, and representative enough that the level of reservation is great enough to ensure maintain diversity within each respective forest community (Church 2009). The RFA's were given legislative effect with the enactment of the *Regional Forest Agreements Act* (2002).

Prior to 2007 clause 68 of the Tasmanian RFA agreement with the Commonwealth stated "The state agrees to protect the Priority Species…through the CAR Reserve System or by applying relevant management prescriptions." The agreement was amended in 2007 to state that the CAR reserve system in accordance with the agreement and the application of management strategies and prescriptions which have been developed under the Tasmanian forests management system, "protects rare and threatened fauna and flora species and forest communities" (cl.68). This amendment combined with the interpretation of the Full Court of Australia in *Forestry Tasmania v Brown* (2007) of the original clause, determined that the CAR reserve system combined with the management prescriptions was thought to adequately protect threatened species, irrespective of whether that system was effective at protecting that species. It is argued this interpretation means that Tasmania merely needs intent to protect threatened species rather than to actually provide protection for them. Beyond this no further explicit protection of priority species which includes the Swift Parrot and all other species listed under the *EPBC Act* and *TSP Act* is provided by the RFA.

3.1.1.4 Recovery Plans

Designed to promote the recovery of threatened species, division 5 subdivision A, of the *EPBC Act* sets out the Commonwealth's obligation in implementing a recovery plan to the extent to which it applies to Commonwealth areas. Outside these areas the Commonwealth must act cooperatively with the relevant State or Territory Government to jointly implement a plan. A recovery plan must state the necessary actions required, threats posed and the habitat critical to the species survival. The Commonwealth Government has been involved in the development of the 1997 and 2001 recovery plans for the Swift Parrot. The conservation measure put in place by these plans will be discussed further under the Tasmanian legislation.

3.1.1.5 Offences

There are a number of provisions within the *EPBC Act* that are implemented to prevent the extinction of listed taxa. One such provision is section 18 that makes it an offence to take any action that will result in a significant impact on one of these species or ecological communities. Likewise it is a strict liability offence to kill, injure, take or trade in a species or ecological communities listed as threatened under the legislation, including the Swift Parrot on Commonwealth land (ss196,196B,196D) without an authorizing permit (s201). Penalties for a breach of the *EPBC Act* may be up to $550,000 for an individual and $5.5million for corporations.

There have been no such offences in relation to the Swift Parrot recorded by the Compliance and Enforcement Branch of the Approvals and Wildlife Division of the Department of Environment, Water, Heritage and the Arts (DEWHA, Commonwealth) (Oates 2010 pers. comm.), and no permits for the taking and trading of Swift Parrots on Commonwealth land under the *EPBC Act* have been issued since records began in 2000 (Oates 2010 pers. comm.).

3.1.1.6 Declaring Critical Habitat

The Minister may also keep a register of habitats deemed to be critical to the ongoing viability of a listed threatened species or ecological community (s207A). It is an offence to knowingly take an action that damages a critical habitat of a threatened community or listed species if it is on Commonwealth land (s207B). There are presently five critical habitats declared under the *EPBC Act* (Department of Environment Water Heritage and the Arts 2010). Neither the Swift Parrot breeding nor wintering habitat has been declared critical habitat under this legislation.

3.1.1.7 Threat Abatement Plans

Section 183 of the *EPBC Act* also details the requirement to list key threatening processes, that are deemed to be significant enough to threaten the survival, abundance or evolutionary development of a native species or ecological community by increasing its level of threat or risk its extinction (s188(3)). Similar to a recovery plan, a threat abatement plan may be instigated to the extent to which in applies in a Commonwealth area, or be cooperatively implemented with relevant States or Territories (s269).

There are presently 12 threat abatement plans in place, and one in the drafting stage (Department of Environment Water Heritage and the Arts 2010). DEWHA has developed two threat abatement plans that relate to the Swift Parrot, one for Psittacine Beak and Feather Disease in 2005 (Department of Environment and Heritage 2005), and one for Predation by Feral Cats in 2008 (Department of the Environment Water Heritage and the Arts 2008). Loss of hollow bearing trees in native forests and woodlands due to ecologically unsustainable forest practices was submitted as a key threatening process, but the nomination was rejected. The scientific committee decided that any threat posed by this process was sufficiently mitigated both inside and outside the RFA areas (Department of Environment Water Heritage and the Arts 2010).

3.2 Tasmanian Legislation

Biodiversity in Tasmania is protected by a series of interacting pieces of legislation. These Acts cover the listing, recovery and protection of threatened species, as well as the management, protection and maintenance of their habitat on both public and private land.

3.2.1 Threatened Species Protection Act (1995)(Tas)

The *TSP Act* (1995) is responsible for the listing of species considered threatened within the State. In 2008 there were 685 species listed, an increase of 51 since 2002 (Department of Primary Industries Parks Water and Environment 2010). The Swift Parrot is presently listed as endangered. Once a species is listed numerous legislative mechanisms are either mandatory or become available as an option to prevent further decline and aid the recovery of the species.

3.2.1.1 Listing Statements

A listing statement must be prepared as soon as possible after listing and specify reasons for a species conservation status, habitat distribution and occupancy, threats to the species, as well as management objectives and issues (s22). As of 2009 only 18% of the 674 species listed under the *TSP Act* had a completed listing statement (Blake 2009). The Swift Parrot does not have a listing statement. However, all information included in a listing statement is in the 2001-2005 Recovery Plan.

3.2.1.2 Recovery Plans

Section 25 of the *TSP Act* also provides the option of creating a recovery plan in which objectives for the conservation and management of the species are published. Only 20% of listed species have a recovery plan (Blake 2009), and many have expired and are in need of revision (Swift Parrot Recovery Team 2001). The Tasmanian Government has produced three recovery plans for the Swift Parrot, solely in 1992 and jointly with the Commonwealth, Victorian and New South Wales

Governments in 1997 and 2001. The present recovery plan expired in 2005. However, as it has not been replaced, it remains legally enforceable.

The overall long term objective of both the 1997 and 2001 recovery plans has been to improve the status of the Swift Parrot so that it no longer meets the IUCN criteria for endangered. The objective is to have it down-listed to vulnerable within 10 years, increasing the total number to more than 2500 individuals (Brereton 1997; Swift Parrot Recovery Team 2001), and to attain a measurable and sustained improvement in the carrying capacity of its habitat (Swift Parrot Recovery Team 2001).

The recovery plans have had several common components: the identification and mapping of the quality and extent of wintering and foraging habitat; the management, retention and revegetation of habitat in both the breeding and wintering ranges; identification of potential collision sites; an investigation into the relationship between flowering intensity of *E. globulus* and the breeding success of the Swift Parrot; monitoring of populations and habitat; and community education (Brereton 1997).

Between 1995 and 2004 there was vast improvement in the understanding of habitat use by the Swift Parrot, particularly on the mainland of Australia (Saunders, 2005). The importance of southern Queensland, and coastal regions when traditional sites are in drought (Saunders 2005), the importance of the retention of mature habitat in Box-Ironbark forests in Victoria (Kennedy and Tzaros 2005), and the preference of the species for larger trees, often isolated in suburban or agricultural settings (Brereton, Mallick et al. 2004), have all been determined by research resulting from a recovery plan. Also, as a result of the recovery programme process, forestry prescriptions for the Swift Parrot are now in place in Victoria and Tasmania and a working group in Tasmania has developed a strategy to provide a continuous supply of nesting hollows (Saunders 2005). Furthermore, to reduce adult mortality Pfennigwerth (2008) released a publication on how to reduce instances of Swift Parrot collisions with human-made structures.

Population and habitat modelling has been conducted on both the mainland and in Tasmania. In 2010, the Swift Parrot winter survey was in its 16th year (Tzaros and Ingwersen 2010), improving knowledge on the importance of Red Ironbark, *E. tricarpa*.

To increase community education, the recovery plan process has established community and volunteer networks to help achieve targets that require surveys and identification of habitat. The "Swifts across the Straight" newsletter has been part of this process. Finally, in order to manage the recovery process a Swift Parrot recovery team has been established. The team should meet bi-annually under the Recovery Plan, but at October 2008 there was no funding for this activity (Blakers and Crawford 2008). A 2006-2010 recovery plan has not been released for public exhibition. Saunders (2005) outlined a summary of the proposed actions for the 2006-2010 National Swift Parrot Recovery Plan, which included the continuation of population and habitat monitoring through winter volunteer surveys and population monitoring. It also suggests an examination of the effectiveness of management prescriptions in place to protect Swift Parrot habitat, particularly in production forests (Saunders 2005).

3.2.1.3 Declaration of Critical Habitats

When satisfied that a habitat is critical to the ongoing survival of a listed taxon of native flora or fauna, the whole or part of that habitat is to be declared critical habitat (s23). Once determined, councils and government agencies must consider potential impacts on a critical habitat when determining whether to approve proposals. No critical habitats have been declared in Tasmania.

3.2.1.4 Threat Abatement Plan

There is also the option of preparing a threat abatement plan to address processes that threaten listed species (s27). At present, threat abatement planning for pests and diseases has been conducted for the Tasmanian Wilderness World Heritage Area but has not been extended to the remainder of the state (Blake 2009). As of 2009, 72

pests, 19 diseases and 111 weeds have been identified as posing a threat to Tasmanian biodiversity, yet only a small number of these have had threat abatement plans prepared to address them (Department of Primary Industries Park Wildlife and the Environment 2010).

3.2.1.5 Land Management Plans

The *TSP Act* also allows for the implementation of land management in order to protect threatened species on private and council operated land (s29). They specify the objectives for the management of the land for the conservation of the threatened species and details how these objectives are to be achieved. These plans may be supported by the implementation of an agreement with the landowner that is flexible enough to allow for financial compensation for adversely affected landholders. The agreement is between the State Government and the present landholder, and is not registered on the title (Grove 2006). Once implemented it becomes an offence to disturb threatened species contrary to the plan in place. No land management plan has been developed or implemented in Tasmania to date, with a preference for the use of Conservation Agreements under the *NCA* (Blake 2009).

3.2.1.6 Public Authority Management Agreements

The Act allows for an agreement with a public authority to provide for the management of any listed taxon or threatening process (s31). To date there has been limited success with this option, with both Aurora Energy Pty Ltd and Forestry Tasmania adopting a management plan (Blake 2009). The agreement with Aurora Energy aims to provide information on threatened fauna coming into contact with their infrastructure, as well as to develop strategies to reduce the number of collisions of species such the Swift Parrot with their infrastructure (Blake 2009). The agreement in place with Forestry Tasmania is an umbrella agreement with subsidiary agreements, none of which relate to the Swift Parrot or its habitat.

3.2.1.7 Interim Protection Orders

The *TSP ACT* gives the Minister for the Environment the power to declare an interim protection order to conserve areas of habitat of a listed or nominated taxon on private or crown land not already subject to a public authority management plan (s32). The orders may prohibit or restrict specific activities on the land that may affect habitat. The Act makes it an offence not to comply with the order, which lasts up to 65 or 30 business days on crown and private land respectively, by which time an agreement, which may involve compensation, must be achieved, or the order lapses. To date no interim protection orders have been issued. The time frame imposed by the legislation makes it unlikely that an agreement or compensation could be achieved.

3.2.1.8 Offences

It is an offence under the *TSP Act* to take, keep, trade or disturb a listed threatened species, or disturb a listed species contrary to a interim protection order, land management agreement or a "Part 5" Conservation Covenant in place under the *NCA* or release them into the wild (s51(1))." "Take" is broadly defined to mean "kill, injure, catch, damage, destroy and collect" (s3(1)). However, it has been suggested as the offence provisions of the Act distinguish between "disturb" and "take", with the former only applying to land subject to an interim protection order or land management agreement, it has been implied that the offence was not intended to apply to habitat destruction except where it can be shown individual species have been injured, damaged, or destroyed (Farrier and Whelan 2004). However, an amendment in 2002 detailed that an individual would no longer require a permit for these actions if a certified Forest Practices Plan (FPP) or public authority management plan is in place, unless it is explicitly required (s51(3)). This amendment suggests that in cases where habitat is destroyed in an activity other than the ones set out in these provisions, habitat destruction will constitute "taking" and be considered an offence under the Act (Farrier and Whelan 2004).

No charges have been laid for a breach of a section of the *TSP Act*. In order to determine guilt one must be able to show the individual "knowingly" took the

species (Jones 2010 pers. comm.). Additionally there are generally no permits issued under this Act to "take" the Swift Parrot, however there are around half a dozen a year issued to wildlife carers to care for injured Swift Parrots until they are capable of release back into the wild (Jones 2010 pers. comm.).

3.2.2 Nature Conservation Act (2000) (Tas)

The Tasmanian *NCA* (2000) is designed to make provisions in regard to the conservation and protection of floral and faunal diversity within the State, as well as providing for the declaration of national parks and other reserves in order to achieve this end. This Act provides a number of mechanisms to protect threatened species in Tasmania.

3.2.2.1 Reservation and Acquisition of Land

The Act gives the right to declare Crown land as reserved land for conservation purposes, such as the protection of threatened species habitat, in the form of national park, State reserve, nature reserve, game reserve, conservation area, nature recreation area or regional reserve (s11). As of 2007 there were 423 reserves, covering 2,508,297ha or 36.83% of the State (Parks and Wildlife Service Tasmania 2008a). The *NCA* also allows for the declaration of private land as reserved land in the form of a private sanctuary or private nature reserve, with the consent of the landowner (s 2). The purpose of this covenanting with the Government allows private land holders to establish a management and rehabilitation regime, and allows the property to be used in a more environmentally favourable manner (Simms 2005). In 2007 there were 12 private nature reserves covering 1,505ha or 0.02% of the State and 23 private sanctuaries cover 5,492ha or 0.08% of the States landmass (Parks and Wildlife Service Tasmania 2008a). At least five private nature reserves are known to include Swift Parrot habitat (Department of Primary Industries and Water 2008). Similarly there are a number of private sanctuaries that are also home to Swift Parrots in their breeding range including the Kingston Golf Course Private Sanctuary (Parks and Wildlife Service Tasmania 2008).

3.2.2.2 Listing Threatened Vegetation Communities

In 2007 the Tasmanian Government enacted legislative changes to further protect threatened native vegetation communities. Threatened native vegetation in this instance includes both vegetation communities that are rare because of natural restriction, and communities that have suffered significant restriction since European settlement (Department of Primary Industries and Water 2009). Of the 142 native vegetation communities in Tasmania, 39 are listed, including the two key foraging habitats of the Swift Parrot in Tasmania, *E.globulus* dry forest and woodland (DGL) (threatened) and *E. ovata* forest and woodland (DOV) (endangered) (Resource Planning and Development Commission 2003d). Whilst listed under this Act, measures to protect these communities are set out in the *Forest Practices Act* (1985) *(FPA)* discussed below.

3.2.2.3 Offences and Infringement Notices

The *NCA* makes it an offence to take, buy or trade, exportation, use or dispose of wildlife (s26) without a permit (s29). These regulations may also prohibit the taking, buying, selling, exportation or having possession of protected plant species (s27). No charges have been laid under the *NCA* in relation to the Swift Parrot.

3.2.2.4 "Part 5" Conservation Covenant

The Minister may enter in a conservation covenant with a relevant private landholder if they deem it is necessary or desirable for a conservation purpose (s34), such as the preservation of threatened species habitat. These agreements may contain agreed provisions, including compensation for financial loss. The covenant may be restrictive or positive (s34(5)), and unlike a Land Management Plan under *TSP Act* runs with the title of the land (s34(6)(a)). There are 92 conservation covenants presently in place in Tasmanian that protect *E.globulus* dry forest and woodland totalling 17,602.30 ha (Rayner 2010 pers. comm.). Many overlap bioregions, but 89 can be found in the South East. The rest are in Ben Lomond, Flinders and Southern Ranges districts (Rayner 2010 pers. comm.).

3.2.3 National Parks and Reserve Management Act 2002 (Tas)

The *National Parks and Reserve Management Act* (2002) protects fauna and flora within Tasmania's National Parks and State Reserves.

3.2.3.1. Management Objectives

This Act specifically provides the objectives for the management of reserved land, which includes the conservation of natural biological diversity for all levels of reserve (schedule 1). Put into practice, this requires the Parks and Wildlife Service to consider potential impacts on species such as the Swift Parrot when upgrading or constructing facilities within reserve boundaries (Ross 2010 pers. comm.)

3.2.3.2. Reserve Management Plans

It allows for the implementation of a plan for the use, development, management of any reserved land in the State (s19(2)(a)), including private nature reserves with consultation with the owner (s20(8)), and on a forest reserve with the Forest Protection Authority (s20(7)). Management plans may incorporate the protection and promotion of threatened species and their habitat within reserve boundaries. Fifteen reserve plans either take measures to preserve the Swift Parrot and its habitat specifically or note its presence. These range geographically from Southport Lagoon Conservation Area (Parks and Wildlife Service 2006) to the Strzelecki National Park on Flinders Island (Parks and Wildlife Service 2000).

3.2.3.3. Offences

This Act also makes it an offence to cut down, damage or otherwise destroy a tree or a fallen tree on reserved land without permission from an appropriate authority (s36). Furthermore the Act allows for regulations to be put in place for either the preservation or protection of flora and fauna or other living things that are kept within reserve boundaries (s60(1)(a)). Likewise, the Act makes it an offence to seize, destroy or kill a creatures found on the reserve land (s60(1)(h)) without a

permit. No charges have been laid in regard to the Swift Parrot under this Act (Jones 2010 pers comm.)

3.2.4 Forest Practices Act (1985) & Forest Practices Regulations (2007) (Tas)

Tasmanian Forestry operations are regulated though two systems; at a local government level through the use of individual planning schemes, discussed below and at a State Government level through the forest practices system in place under the *FPA* (1985) (Grove 2006). This Act establishes a number of mechanisms for the regulation of forests in Tasmania.

3.2.4.1 Creation of the Forest Practices Authority

This Act established the Forest Practices Authority (the Authority), which operates as an independent statutory body designed to regulate and administer Tasmania's Forest Practices System (Grove 2006). This system was put in place with the aim of ensuring that forest practices on all tenures of land allow for the protection of natural values of the forest. The jurisdiction of the Authority therefore covers all tenures of land with the exception of private land which is not a designated private timber reserve, which is regulated by local council planning schemes. The role of the body includes developing and ensuring compliance with the Forest Practices Code (the Code) (Forestry Commission 1993), which provides a set of legally enforceable guidelines and standards to ensure reasonable protection of Tasmania's forests natural values. It has not been revised since 2000 (Blakers and Crawford 2008). The Authority are also responsible for advising the Minister as to forest practices policy, overseeing the training of Forest Practices officers who prepare and assess FPPs, as well as overseeing standards for FPPs. In this vein the Authority audits a representative sample of FPPs annually, and has the power to impose fines or take legal action to ensure standards imposed by the code are maintained (Grove 2006). The Authority also has the power to require the owner of the land to enter into a conservation covenant under the *NCA* in certain circumstances (s16(3)). The aim of the forest practices system and indeed the code is a co-regulatory approach; both

owners and the forestry industry are responsible for making sure their practices comply with the code and other government regulations (Grove 2006).

3.2.4.2 Private Timber Reserve

Under section five of the Act a landholder may seek to have their land declared a private timber reserve (PTR). If successful in their application, the land is to be used solely for the purpose of establishing forests, or growing or harvesting timber in line with the Code (Forestry Commission 1993) and any other activities the Authority considers to be congruent with the establishment of a forests, or the growing or harvesting of timber. In 2006 there were 1, 667 PTRs in Tasmania accounting for 419,100ha of land, or 40% of the private forests in the State (Grove 2006). PTRs must be operated in accordance with the Act including the requirement of a FPP for any forestry practices undertaken on the land.

3.2.4.3 Forest Practice Plans

The Code stipulates that a FPP is required for a number of forest and land clearance practices including; harvesting and regenerating native forest, harvesting and/or establishing plantations, clearing forests for other purposes, clearing and converting threatened native vegetation communities and constructing roads and quarries for these purposes. Amendments to legislation in 2006 extended this control to include "other threatened native vegetation communities", such as high altitude native grassland. A FPP is prepared and supervised by Forest Practices Officers. A FPP will stipulate the areas in which forestry operations may take place and similarly it will dictate which areas are to be protected from these operations, all in accordance with the Code (Forestry Commission 1993) The *Forest Practices Regulations* (2007) dictate the circumstances in which a FPP will not be required for the removal of trees (s4). These include:

- When the clearance of trees is on small scale and is on land that is not "vulnerable", (vulnerable land is that which contains a threatened vegetation community, or a threatened species listed under the *TSP Act*, or land which

contains an area of trees reserved from the harvesting or clearing of trees under an expired FPP), so long as the owner has consented and the volume of timber harvested is less than 100 tonnes, or the total area to be cleared is less than one ha per annum, which ever of the two is lesser;

- When native vegetation is cleared to allow for a reasonable buffer, to enable safe vehicular access to a building, or to provide protection for infrastructure, such as a fence or house from damage by a falling timber, or for public safety;
- When clearing regrowth native vegetation of no more than 20 eucalypts, from land that has been previously been cleared and converted (has not contained trees of threatened vegetation for a period of more than 5 years since 1985);
- When harvesting or clearing any land, or similarly where clearing or converting threatened native vegetation for dam works, so long as there is an appropriate permit, or the creation of an easement for electricity infrastructure or the ongoing maintenance of that infrastructure conducted in accordance with an environmental management system endorsed by the Authority, or the construction and maintenance of gas pipelines or public roads, or the clearing of a railway within the definition set out in the *Rail Infrastructure Act* (2007);
- When the clearing is carried out in accordance with a vegetation management agreement, conservation covenant as set out under the *NCA* or fire management program authorized by the Authority;
- When the clearance is for the purpose of mining or mining exploration as authorized by a permit issued under the *Land Use Planning Approval Act* (1993) (*LUPAA)* or a lease or licence under the *Mineral Resource Development Act* (1995); or
- When the clearing is carried out for the purpose of constructing a building or other associated development, when there is an authorized permit issued under the *LUPAA*.

With the exception of these exclusions above a FPP may not be issued for the clearance and conversion of a threatened native vegetation community, which

includes the Swift Parrots primary habitat in *E. globulus* dry forest and woodland, unless the authority is satisfied that either, exceptional circumstances exist, the clearance would have an "overall environmental benefit" or it would not detract from the conservation of the threatened community or values within its vicinity (s19(1AA)).

When preparing and certifying a FPP a forest practices officer will refer to the Authority's "Fauna Value Database" in order to determine the whether a threatened species is likely to be found in an area planned for logging (Forest Practices Authority 2002). Should this be the case it will be referred to the Threatened Fauna Advisor in order to establish what management prescriptions should be put in place, or whether the matter should be further referred to the Authority for specialist advice (Blakers and Crawford 2008). The principal management objective for production forests is to protect all foraging habitat during the breeding season and nesting habitat (Forest Practices Authority 2002). Yet the management prescriptions require that every coupe with potential foraging or nesting habitat is to be referred to the Authority for advise on a case by case basis, as opposed to receiving automatic protection (with the exception of grassy *E. globulus* forest, which has been identified as foraging habitat). High quality Swift Parrot habitat is defined in the Fauna Values Database as all grassy *E. globulus* (DGL) and *E. ovata* and *E. viminalis* (DOV). For nesting habitat it is all eucalypt species that have hollows with a diameter greater than 70 cm (Blakers and Crawford 2008). When a nesting site is identified, a 1 ha buffer around the nest tree is prescribed. Yet as the case of *Brown v Forestry Tasmania no 4* discovered this does not extend to potential nesting sites (2006). There is presently no mechanism to quickly include new scientific evidence into systems and processes (Blakers and Crawford 2008).

3.2.5 Local Government Act (1993) (Tas)

Councils play a significant role in Tasmania's planning system, and as such the *Local Government Act* (1993) sets out an obligation for councils to facilitate and encourage the planning and development of the municipal area in the best interests of

the community (S28(2)(c)). This Act details a council must not make a by-law that is contrary to any planning scheme, as established under the *LUPAA*, in effect in the municipality (s150(1)(d)).

3.2.6 Land Use Planning Approval Act (1993) (Tas)

LUPAA (1993) implements the Resource Planning and Management System (RPMS) in order to achieve sustainable outcomes from both the use and development of the State's natural and physical resources. The Act applies to both private land, with the exception of PTR's, and all public land with the exception of State forests.

3.2.6.1 Planning Directives

Planning directives may come into effect under *LUPAA*, and are a method of giving direction to a wide range of planning matters. They ensure consistent approaches to certain land use issues and procedural matters within RPMS (Tasmanian Planning Commission 2010) and define policies in relation to other issues (Resource Planning and Development Commission 2003). They can relate to the use, development, protection or conservation of any land requiring consistency for all municipal areas, or areas unique to one municipality, the application of a new state policy or any other matter deemed appropriate (s9). A council is bound by a directive, and must do everything in its capacity to comply with it, which includes the modification of council planning schemes (s14). Only three directives had been drafted to date, (Tasmanian Planning Commission 2010) none of which relate directly to the conservation of the Swift Parrot. Suggested future State policies include vegetation management (Feehley 2005).

3.2.6.2 Planning Schemes

A local council, as a planning authority, is in charge of the use and development of land within its municipal boundaries through a planning scheme (s20). Planning schemes are legally binding regulatory instruments in places under this Act, which are integral to delivery of sustainable development and land use at a local level

(Resource Planning and Development Commission 2003). Planning schemes are prepared and administered by local councils, and must be consistent with the objectives set out by the RMPS, which revolve around the notion of sustainable development, and may make provisions for the use, development, protection or conservation of land in the area (s20). Each planning scheme has a plan or map which divides the municipality area into different land use zones, precincts, or overlays which dictates the objectives of, and conditions by which the use and development may or may not be granted a permit in each of these areas (Resource Planning and Development Commission 2003). The Planning Scheme then determines what types of uses are allowed within each respective zone, and the standards to which proposed development must comply. Both the Hobart and the Kingborough planning schemes promote the retention of environmental values, including threatened species (Hobart City Council 1982; Kingborough Council 2000). For example, the Hobart City Council planning scheme provides a bushland management schedule that applies to all land contained within the Landscape and Skyline Conservation and Low Density Residential Zones which aims to prevent the individual and cumulative impacts of development having a detrimental effect on the vegetation and fauna. The Council has the discretion to refuse a permit in this area, if it is incompatible with the biodiversity of the area. Under the Act a person may apply to their council for a permit to commence any use or development of land. An individual is prohibited from commencing any use or development on a land that requires a permit without one (s51).

3.2.6.3 Civil Enforcement

If a planning authority, planning commission, or a person with a proper interest in the subject matter (such as a neighbour) believes the landholder has contravened a provision of *LUPAA*, they may appeal to the Resource Management and Planning Appeal Tribunal (RMPAT) for an enforcement order. These include an order prohibiting the act, or require to respondent to "make good" the contravention (s64). This also applies if one breaches a planning permit.

3.2.6.4 "Part V" Agreements

Councils may enter into formal agreements with a landowner, which may prohibit, restrict or regulate development on the land, instigate conditions under which use or development may be undertaken, or relate to any other matter deemed to advance the RMPS objectives (s72). These tools are used for a number of purposes and are not limited to conservation but may include the preservation of threatened species and their habitat (Ross 2010 pers. comm.). Both Hobart City and Kingborough Council have in place a number of "Part V" agreements that relate to the Swift Parrot (Moore 2010 pers. comm; den Exter 2010 pers. comm.). The main provisions found within the agreements in Hobart include the retention of important habitat trees, such as *E. globulus* and *E. ovata* for foraging and mature *E. obliqua, E. pulchella* and *E. globulus* with hollows for nesting, as well as the retention of *E. globulus* dry forest and woodland (DGL) and *E. ovata* forest and woodland (DOV) in order to protect significant foraging and nesting habitat (Moore 2010 pers. comm.) These agreements are also frequently used to ensure that structures comply with guidelines for parrot-safe building design (Pfennigwerth 2008).

3.2.6.5 Civil Enforcement Order

The Resource Planning Development Commission, a council, or person with a proper interest may apply to the RMPAT for a civil enforcement order where an individual fails to comply with a provision of *LUPAA*, such as breach of permit or acting without a permit in contravention of the Act (s64). Should a council refuse to grant a development permit, or grant it conditionally, the applicant has a right to appeal this decision RMPAT (s61(4)).

3.2.7 Resource Management and Planning Appeals Tribunal Act (1993) (Tas)

This Act establishes RMPAT, an independent statutory body that resolves appeals against a wide range of administrative acts and decisions (Resource Planning and Development Commission 2003). There a number of circumstances in which one

would appeal to RMPAT. A permit applicant may appeal where a local council has refused to grant a permit or granted one conditionally, or alternatively the landholder, a person who made a representation under section 57(5) of *LUPAA*, or a properly interested party, as decided by the tribunal, may appeal where a permit has been subsequently amended. Likewise parties may appeal a permit that has been granted. RMPAT can direct the council to grant the permit conditionally or unconditionally, reject the application (s23), or dismiss an appeal altogether (s22A). RMPAT must give reasons for its finding (s24). The decisions of RMPAT are legally binding; any subsequent appeals, on a question of law only, may be lodged with the Supreme Court of Tasmania (s25). There have been 20 development appeals to RPMAT that made reference to the presence of Swift Parrot or its habitat in their reasoning. As a result of these cases a number of positive environmental outcomes were achieved. These included improvements to permits such as assurance that *E. globulus* outside building envelopes be retained (*Armatos Pty Ltd v Kingborough Council 2009)*, that fauna and flora assessments be conducted on respective properties to investigate the presence of the species (*A McGee v Glamorgan Spring Bay Council 2007*), and upholding councils decision to reject a planning permit due to non compliance with a planning schemes vegetation retention provisions (*Brooks Lark and Carrick v Kingborough Council 2004*).

3.3 Conclusion

This chapter has highlighted that at a Federal and State level, interacting and overlapping pieces of legislation operate to protect and promote threatened species, including the Swift Parrot. It has also demonstrated, although many tools are in place, few have been utilized to aid the protection of the species. The next chapter will examine in more detail the interaction between the threatened species and the legislation on various tenures of land in Tasmania.

Chapter 4 Outcomes in the Landscape

This chapter provides three case studies that look into how threatened species legislation in Tasmania has operated to protect the Swift Parrot in the State, and the outcomes of this in the landscape. The first case study focuses on forestry operations in Tasmania, the second looks at a property development managed by a local council, and the last, two associated developments referred to Environment Australia as a requirement under the *EPBC Act*.

4.1 Case Study 1 – The Wielangta Case

Blakers and Crawford (2008) estimated that actual and potential Swift Parrot habitat is being logged at over 1000 ha per annum in Tasmania. To examine the way in which forestry operations in Tasmania interact with the Swift Parrot, this case study will look at the legal challenge to logging in the Wielangta Forest. It will focus on coupes WT017E and WT019D which are at the centre of the *Brown v Forestry Tasmania (2006)* court case and subsequent appeals.

4.1.1 Wielangta Forest and the Swift Parrot

Wielangta Forest, is located in the south-east corner of Tasmania, approximately 50 km north-east of Hobart. Made up of a number of different land tenures, including State reserves, State forests and forest reserves (Department of Infrastructure Energy and Resources 2009), it covers an area of 37,500 ha (Forest Education Foundation 2010) and has been used for timber harvesting purposes since the early 1900's (Forest Education Foundation 2010).

Both coupes WT017E and WT019D, within the Wielangta Forest, were identified as Swift Parrot breeding habitat in 2001. The FPP for coupe WT017E was issued on the 28th of January 2005 (Bishop, Dean et al. 2005). The estimated time of completion for harvesting was the 31st of August 2006 (Bishop, Dean et al. 2005), yet Gunns had completed their clearing of the 47 ha of coupe, more than a year earlier on the 16th of August 2005, prior to the trial commencing. This preceded the case and any chance of an injunction being granted stopping logging in the coupe. The plan detailed a number of management prescriptions to be put in place to

conserve Swift Parrot habitat in the coupe, including the establishment of a protection forest for the species, in which no trees could be felled, unless authorized for safety reasons (Bishop, Dean et al. 2005). Expert evidence in the trial however suggested that 17 trees were felled in this area during logging operations (trial transcript p 567). Within the actual harvesting zone the FPP dictated that should any nests be located during operations, forestry activities were to cease until further advice could be sought on the matter from senior ecologists (Bishop, Dean et al. 2005). Yet Peter Brown, as an expert witness on the Swift Parrot, felt it was unlikely that previously unidentified nests would be discovered once forestry operations had commenced (trial transcript p 379). Dr Shields further confirmed that in the absence of a detailed survey little protection would be provided for nests beyond known sites (trial transcript p 2495). As operations took place in August, it is unlikely many parrots would be nesting in southern Tasmania. Another prescription stated that no road clearing was to take place within 15 m of a known nesting tree (Bishop et al. 2005). Again the opinion of expert witness in the trial case was that it would be "not acceptable in any circumstances" to put a road "within 15 m of a nest of an endangered species" (trial transcript p 380). The FPP for WT017E also provided for the setting aside of five wildlife habitat clumps (WHCs), in which no logging was to occur except for safety reasons. The plan provides that a mixture of WHCs should be selected, including one or more in dry *E. obliqua* forest containing several old trees and a mixed age structure. The plan prescribes that each WHC should contain at least two mature trees, and a diverse understorey (Bishop, Dean et al. 2005). Peter Brown, speaking generally on WHC's, stated that in a lot of cases better quality habitat would be logged in the coupe than was preserved in these areas, which could impact on the breeding success of the species (trial transcript p 385). Peter Brown further stated that habitat clumps generally were of little value to the species, due to their exposed nature (trial transcript p 259), and noted that the canopy cover around the WHC in WT017E was significantly reduced (trial transcript p 441). He reasoned that should a Swift Parrot nest in an isolated open area like a WHC they would be at a greater risk of predation by birds of prey than in a continuous forest, and testified he had personally never found a nest in such an exposed area (trial transcript p 259). Additionally the FPP provided for the reservation and retention of land along the top of a ridge on the eastern part of the coupe, known as the "Skyline Reserve" (Bishop,

Dean et al. 2005). This area, in theory, had a good chance of retaining suitable nesting trees for the species (trial transcript p 298), although no survey was conducted to confirm their presence (trial transcript p 620). Speaking on the post logging condition of the coupe, Kennedy, another Swift Parrot expert, testified that logging in WT017E removed a large number of nesting habitat in mature *E. pulchella* (trial transcript p 571), when 70% of the coupe was felled and 80% of large trees removed (trial transcript p 572). Furthermore, post-logging, Peter Brown, considered coupe WT017E to be "totally unsuitable for Swift Parrots" (trial transcript p 253), and said that it could not be used for nesting again by the species to close to 100 years (trial transcript p 258).

The FPP for coupe WT019D was certified on the 11th of April 2005. It details that of the 68 ha coupe, 33 ha is dry *E. delegatensis*, 12 ha is dry *E. obliqua* forest, and the remaining 23 ha is made up of *E. pulchella, E. globulus, E. viminalis* grassy shrubby dry sclerophyll forest (O'Malley 2005). Within it there are two prescriptions made in relation to the conservation of Swift Parrot habitat, the first details that potential nesting habitat for the species is to be incorporated into WHCs. Within this coupe six WHC were to be established, in which no trees are to be felled, and where possible two trees with nesting hollows should be retained. The other prescription is the creation of wildlife habitat strips in the coupe in which no trees are to be felled (O'Malley 2005). Testimony by Peter Brown stated that the forest found in WT019D, is some of the "finest Swift Parrot breeding habitat that (he) had seen," as it contains mature old growth forest, which has seen little anthropogenic interference, and many trees where one is likely to find nest sites (trial transcript p 254). Kennedy further declared the coupe, "is an ideal quality Swift Parrot habitat" and may allow for great densities of the species to breed there (trial transcript p 690). Further Kennedy testifies around 80% of the coupe should be reserved in a special management zone in order to protect all potential nesting sites in the coupe (trial transcript p 570).

4.1.2 Basis for the Application for Injunction

In 2005, Senator Robert Brown sought an injunction against Forestry Tasmania, as the statutory body responsible for managing forestry in Tasmania, pursuant to the right imposed under 475(1)(b) of the *EPBC Act*, in order to halt forestry operations

within the Wielangta forest. The applicant based his submission on the suggestion that the forestry operations in WT017E and WT019D were in breach of s18(3) of the *EPBC Act*, in that they were likely to have a "significant impact" on threatened species in the area, and that the exemption provided for RFA's from the assessment and approval process under section 19(3)(a) did not apply as the operations were not conducted in accordance with the Tasmanian RFA, specifically clause 68 (Brown 2005).

4.1.3 The Trial Case - Brown v Forestry Tasmania

Marshall J oversaw the trial in the Federal Court. He was presented with a number of issues to determine; firstly whether forestry operations were likely to continue in Wielangta Forest and whether the listed threatened species, including the Swift Parrot were present in the forest. If these issues were confirmed, then the question arose whether the forestry operations were likely to have a significant impact on these species, within the meaning of the *EPBC Act*, and whether the forestry operation were being carried out in accordance with RFA, specifically clause 68.

On the 6th of December 2006, Marshall J granted the injunction sought, and made his declaration, as follows;

Firstly based on previous conduct, he suggested forest operations were likely to continue in the Wielangta block until at least 2013, with 11 coupes provisionally planned for harvesting [at 40]. Considering evidence tendered, Marshall J held that the Swift Parrot was likely to be present in the Wielangta Forest in the spring breeding season when *E. globulus* is flowering profusely, and in smaller numbers, or not at all when it fails to flower [at 81]. Marshall J accepted the evidenced tendered by Peter Brown and Simon Kennedy, for the applicant, that the Swift Parrot habitat in the coupes would be reduced by 70% should harvesting proceed and the species would be unlikely to return to the forest for 100 years, until it was suitable to support nesting hollows [at 154]. He further concurred with the submission by Mr Kennedy that the prescriptions in place at the time did not act to protect the species, merely reducing the impact on it [at 154]. In regard to the parrot he concluded that the forestry operations in WT017E, WT019D and other Wielangta coupes were likely to

have a significant impact on the species, by removing a key portion of its nesting habitat, when foraging resources were in flower [at 162]. Marshall J further held that the forestry operations were entitled to an exemption from the assessment and approval process provided that these operations were conducted *in accordance* with the RFA [at 213] (own emphasis). He held that section 38 of the *EPBC Act* provides an alternative method by which to achieve the objects of the Act for forestry operations to the assessment and approval process [at 238]. This in turn meant that it is insufficient for the State of Tasmania, to merely pay "lip service" to the RFA for the exemption to apply, rather they are obliged to ensure operations are carried out in accordance with the requirements of the RFA [at 238]. Marshall J explained that protection of threatened species goes beyond an attempt to protect, or merely consider protection [at 241], rather it can only be considered effective if it not only assists a species to survive but aids its recovery to the point that it no longer requires protection [at 264]. He emphasized that any protection afforded to the Swift Parrot through the CAR system is minimal, as a majority of the nesting and foraging habitat lies outside the boundaries of reserves [at 266]. Marshall J also critiqued the effectiveness of the reserve system and the management prescriptions applied to protect the Swift Parrot (Peel 2008). Specifically he held the definition of breeding habitat was not broad enough by excluding *E. pulchella* and *E. obliqua,* and the foraging habitat only mentioned *E. globulus* and the prescriptions only protected known nest sites and not potential ones [at 274].

Marshall J decided that the requirement imposed by the various international treaties, suggested that the *EPBC Act* must promote the conservation of biodiversity which may only be achieved through a construction that considers protection of the environment as an act of not merely maintaining a species population but also aid its recovery to an extent that is no longer considered threatened [at 300]. Considering this and the failures mention above, Marshall J concluded that that forestry operations within the Wielangta Forest had not been carried out in accordance with the RFA by reference to clause 68, and as a result section 38 of the *EPBC Act* did not apply to them, removing the exemption from the assessment and approval process [at 293].

4.1.4 Full Court Appeal (Forestry Tasmania v Brown)

Forestry Tasmania appealed this decision, which was heard in the Full Court of the Federal Court of Australia by Sundberg, Finkelstein and Dowsett JJ (2007). The central issue of the appeal was based less around the facts at hand as was the case in the initial trial, and more around the law, specifically whether s 38 of the *EPBC Act* exempts the operations undertaken by Forestry Tasmania from Part 3, the assessment and approval provisions of the Act.

On the 7th of November 2007, the appeal was unanimously overturned in favour of the appellant, quashing the injunction, and holding that Forestry Tasmania was in fact entitled to the exemption provided under the *EPBC Act* s 38(1). They held this on the basis of their interpretation of the clause 68 of the Tasmanian RFA.

Notably clause 68 of the RFA was amended following the trial judgement and before the appeal. As such the original clause;

The state agrees to protect the Priority Species listed in Attachment 2 (Part A) through the CAR Reserve System or by applying relevant management prescriptions.

Was replaced with;

The parties agree that the CAR Reserve System, established in accordance with this Agreement, and the application of management strategies and management prescriptions developed under Tasmania's Forest Management Systems, protect rare and threatened fauna and flora species and Forest Communities.

It was determined that this clause only imposed an obligation to establish and maintain the CAR reserve system, which in itself provided protection, and did not involve any enquiry as to whether the CAR reserve system effectively protected the species within [at 59]. This meant the State was only obliged to protect threatened species *through* the reserve system as opposed to protect them in any fashion necessary to ensure their survival [at 60] (original emphasis). Their honours rationalized that the explanatory memorandum and the revised memorandum that became the Act clearly states that the Commonwealth legislation does not apply to RFA regions because the regimes applicable in these areas are found within the

RFA's themselves [at 62] The Full Court took into account that RFA's were designed to reflect a compromise between the forestry industry and environmental concerns, and as such not all issues could be resolved, meaning that there could be no assurance that the environment, including threatened species, would not be adversely affected [at 64]. The court further illustrated that the fact none of Part 2 of the RFA, which includes clause 68, is legally enforceable as evidenced for the section not imposing any obligations upon the State to protect species, and this was only emphasized further with the amendment [at 92].

Because of these reasons, the Full Court held that Forestry Tasmania's harvesting operations in the Wielangta forest had been and would continue to be conducted in accordance with the RFA, and were eligible for the exemption provided by section 38(1) from the assessment and approval provisions of the *EPBC Act*. As this decision was sufficient to overturn the trial judgment, the Full Court did not need to evaluate the other issues decided in the trial case [at 99] including the impact on threatened species, and the level of protection afforded by the CAR reserve system [at 103].

4.1.5 Application for Special Leave to Appeal to the High Court

Brown sought special leave to appeal the case to the High Court of Australia. On the 23rd of May 2008, in a 2:1 decision (Hayne and Crennan JJ in the majority with Kirby J partially in dissent), the appeal was rejected . In this case the appellant sought leave based on two questions; the first being the proper construction the RFA agreement and secondly the powers of the Full Court of the Federal Court to overturn the initial injunction to halt forestry operations by Forestry Tasmania. In deciding Kirby J granted special leave for the first issue but not the second. No elaboration was given on reasoning. Hayne J, for the majority concluded that there was no need to grant leave for appeal to the High Court as there were insufficient prospects of success in doing so. Although no further justification was given, their reasoning appears to be that, considering clause 68 had been amended to explicitly state that the system does provide protection, there is no need to argue whether it does or does not go further, with the court unanimously holding that the amended version superseded the original clause (Church 2009).

4.1.6 Subsequent Developments

Logging in WT019D, before the intervening legal action, was scheduled to be completed by 30th June 2006. The FPP for the coupe was due to expire on the 31st of August 2008, but was extended in June that year for a further two years (Blakers and Crawford 2008). Another survey of the coupe in 2006 revealed it contained high quality breeding habitat for the Swift Parrot, no management prescriptions were changed at the time (Blakers and Crawford 2008). In subsequent seasons the species was found in the Wielangta Forest, including the coupe scheduled to be logged, in high densities (figure 4.1). It is estimated this represented around half the total population in 2008, due to the significant flowering intensity in the area of *E. globulus* that year (Threatened Species Section 2009). This survey supported knowledge that Wielangta Forest is an important breeding location for the Swift Parrot, and the abundant presence of the species during this time prompted Forestry Tasmania to defer logging operations in the area (Blakers and Crawford 2008). In 2008 Forestry Tasmania, the Department of Primary Industries, Parks, Water and the Environment (DPIPWE) and the Authority, as result of survey efforts from 2007/2008 breeding in southern forests, began working together to develop a 'strategic assessment' of the Wielangta Forests (Blakers and Crawford 2008). The aim being to provide a more integrated approach to managing Swift Parrot habitat in Tasmania (Brown 2009). Forestry Tasmania produced its first landscape scale plan in 2009 (Forestry Tasmania 2009). They released a Draft Interim Plan for the Swift Parrot in State Forests within the Southern Forests and South Bruny Island area of the Huon forestry district, which implement the use and protection of Swift Parrot Important Breeding Area (SPIBA) (Forestry Tasmania 2009). The Authority and DPIPWE have declined to endorse Forestry Tasmania's interim plan at this stage, and are working on their own planning guidelines and strategic plans respectively (Forestry Tasmania 2010b). The Authority is producing a guideline that aims to retain Swift Parrot habitat on land that is subject to the forest practices system, and DPIPWE is producing a strategic plan for activities on all tenures of land that are not regulated by the system, such as subdivisions (Forestry Tasmania 2010b).

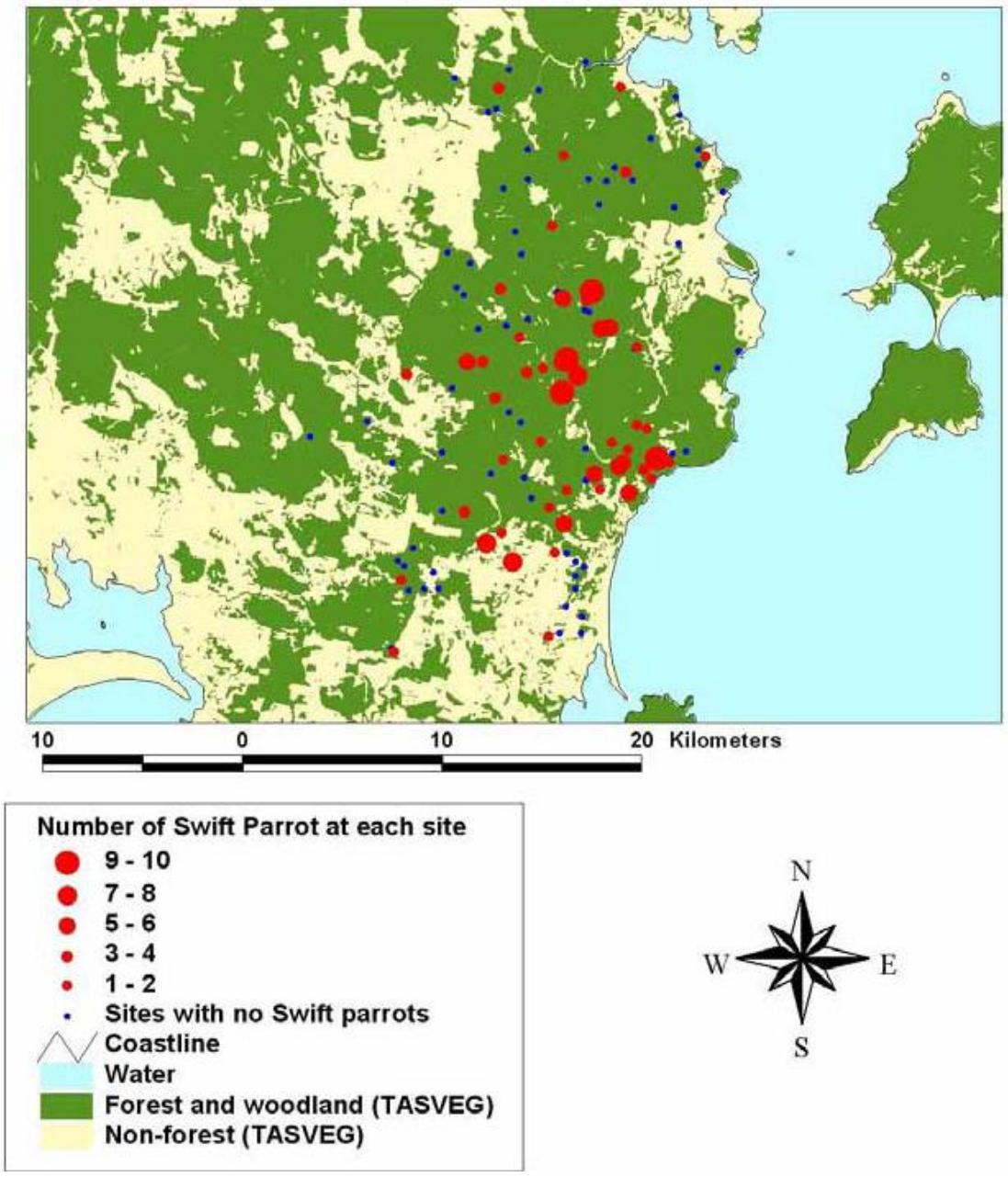

Figure 4-1. Relative abundance of Swift Parrots in the Wielangta Forest area in 2008/2009 breeding season taken from Threatened Species Section (2009)

The Authority's Swift Parrot Habitat Planning guidelines, although not complete, have produced interim guidelines that notify the Authority of coupes with potential habitat within them as of December 2009 (Forestry Tasmania 2010b). Coupe WT019D remains on the contingency plan for Forestry Tasmania, in the Three Year Wood Production Plan for 2010-2013, it is not scheduled to be harvested in any one of the three years (Forestry Tasmania 2010a).

4.1.7 Legal Implications of the Cases for Forestry

This series of litigation has provided the first test of the relationship between the *EPBC Act* and Tasmania's RFA, and the level of protection provided by both to threatened species in production forests (Church 2009). The trial judgement opened the door for resource management in Australia a movement toward ecologically sustainable position, by ensuring those undertaking forestry operations under an RFA comply with the commitment to conserve threatened species (Peel 2008), and by allowing the cumulative effects of actions on threatened species to be considered in legal proceedings (Gardiner 2007). Yet the former outcome was quashed with the subsequent appeals leaving the legislation in a state that provides scant protection to threatened species in forests regulated by an RFA (Church 2009).

4.2 Case Study 2 – Development of 837, 851 and 873 Sandy Bay Road.

Urban development is removing large eucalypt trees used by Swift Parrot as a foraging resource whilst in Tasmania (Piech 2008). This case study looks at the way in which the urban development progress is affected by the presence of threatened species.

Located on the upper side of Sandy Bay Road, in Lower Sandy Bay, the site in question backs onto Pierces Reserve and Porter Hill, both owned by the Hobart City Council (figure 4.2). Grassy/shrubby *E. globulus* forest dominates the property covering approximately 2 ha of the 3 ha uncleared bushland on the site, with *E. pulchella* and *E. viminalis* the sub-dominant species (North Barker Ecosystem Services 2004). On the properties in question a majority of the *E. globulus* is found on the northern boundary and the south-eastern slope (figure 4.3). Within the Hobart City Council boundaries there are only 133 ha of grassy *E. globulus* 28 ha of which are within reserves (North Barker Ecosystem Services 2004).

A vegetation assessment of the area by North and Barker Ecosystem Services (2004) identified 104 *E. globulus,* 74 which had a diameter greater than 150 cm. The community is considered to be in moderately good condition, yet only four trees

were identified to be large enough to support hollows, at the northern end of the site (North Barker Ecosystem Services 2004).

Figure 4-2. Location of Sandy Bay Road development, Hobart , taken from Google Earth (2008)

The Swift Parrot was noted on the property on two occasions during the assessment period, which was in early spring, and may have preceded a majority of the species populations' arrival in southern Tasmania to breed. The assessment process identified the area, particularly larger trees on the northern boundary as significant to the Swift Parrot (North Barker Ecosystem Services 2004). The potential impact of the subdivision on the Swift Parrot, according to the vegetation assessment, is dependent on the level of clearance undertaken on the lot.

4.2.1 The Proposed Developments

The Hobart City Council has received 20 applications for the three properties, 10 of which have been approved, two have been rejected and eight are yet to be determined (Moore pers. comm. 2010)

Figure 4-3. Aerial image of 837, 851 & 873 Sandy Bay Road, Hobart, taken from Google Earth (2008)

4.2.1.1 837 & 851 Sandy Bay Road

Planning approval was granted for four houses on these two lots in 2008 (Hobart City Council 2008b). Due to the developments location and potential impact on threatened species the Swift Parrot a number of conservation issues were considered. To ensure vegetation protection the case of *M & F Green v Hobart City Council and A & A Griggs v Hobart City Council* (2008) decided an environmental management plan should be prepared in accordance with the 2004 vegetation report, identify the species and vegetation on site, as well as the short and long term management prescriptions to protect them. Upon approval by the council this plan was to be incorporated into a Part 5 agreement under *LUPAA* with the Hobart City Council, and a building permit was not to be issued until the plan has been lodged with the registrar of titles. This outcome is consistent with the conditions of the subsequent planning permit issued (Hobart City Council 2008b), yet a Part 5 Agreement has yet to be entered into on this issue. Additionally the planning permit determined that a conservation plan should exclude the *E. globulus* at the north of the site from future

development (other than for bushfire management or weed management purposes), and to reduce disturbance on the site, all development was to be restrained to a delineated construction zone (Hobart City Council 2008b). As part of FPP required due to the removal of a threatened species habitat, a "Flora and Fauna" reserve is to be designated in the northern part of the property (Moore pers. comm. 2010). This reserve will protect the *E. globulus* in the north-western corner, yet the trees outside this zone on the lower slopes are to be removed, although the applicant suggests a number of healthy trees outside this area may be retained, including one or two of the four identified nesting trees, dependent on an assessment on the health of these individuals (Moore pers. comm. 2010). No Part 5 Agreement has been registered on this issue and the subsequent developments of the FPP will be discussed in more detail below. A Part 5 Agreement does exist in regard to the Bushfire Hazard Management Plan (Tasmanian Land Titles Office 2008). The agreement held that in consideration of the Planning Authority, in the Hobart City Council, granting a planning permit, the owner was to covenant with the Council to implement and maintain a Bushfire Hazard Management Plan (Hobart City Council 2008). The plan states that the values of the Fauna and Flora Reserve on the northern boundary are not to be changed, and identifies building protections zones, and fuel modified buffer zones. The covenant runs with the title of the land (Tasmanian Land Titles Office 2008)

The Threatened Species Unit, made a number of recommendations about development on the property. They suggested it was likely that nesting sites of the species would be removed, and secondly there would be an increased possibility of mortality due to birds colliding with windows (Hobart City Council 2008a). This issue was also stressed by a flora and fauna survey North Barker Ecosystem Services (2007) who determined the proposed development on this site, posed a moderate risk of increase bird strike, and suggests design measures to reduce the risk. The Threatened Species Unit also recommended that the development be redesigned to minimize the likelihood of bird strikes, and that *E. globulus* without hollows be removed from the vicinity to reduce the number of birds in the immediate vicinity of development (Hobart City Council 2008a). In consideration of this threat the

planning permit recommends the removal of "fly through zones" on the designs of any buildings to reduce the risk of bird strikes (Hobart City Council 2008b).

Subsequent developments

In June 2008, the Hobart City Council refused a new development application on this property, for a single building containing nine, two bedroom flats on this land [at 1], the applicant applied to RMPAT in *A Griggs v Hobart City Council* (2009) to overturn this decision. The Council rejected the application on the basis that it was contrary to zoning objectives and desired characteristics of the area [at 5]. The appellant used the previous approval of four houses as the basis as grounds to refute the refusal. Additionally the appellant maintained that the Bushfire Hazard Management Plan in place under the Part 5 Agreement, already allowed for clearing of native vegetation, and therefore it should be allowed for the subsequent application [at 6]. In this case the Tribunal held that the appeal should be rejected, as the proposal would detract and be at odds with the existing landscaped hillside character [at 38], and "detract from the characteristics of the place which contribute to its cultural significance" [at 68], and vegetation clearance under the Bushfire Management Plan was restricted to the previous application of four houses [at 51]. No mention was made of threatened species potentially adversely affected by the development.

Furthermore at the time, approval was required from the Authority to remove threatened native vegetation communities, as a result of which the applicant has entered into a deed of agreement with the Authority to offset the vegetation lost as a condition of approval. The terms of this agreement involve two offset components; the first is 1 ha of *E. globulus* to be reserved on site and either the protection of 4 ha of *E. globulus* off site in the south-eastern bioregions, or alternatively the provision of financial support for the management of this community or Swift Parrot habitat (Moore pers. comm. 2010). The council prefers the option of 4 ha offsetting over the financial aid offered; the applicant differs on this view (Moore pers. comm. 2010). Arrangements are yet to be finalized, yet the council would investigate the appropriateness of the latter option if necessary and should Authority approval be granted for the scheme.

Notably the vegetation assessment (North Barker Ecosystem Services 2004), and the initial RMPAT case recommended the applicant refer the proposal to the Commonwealth Minister for Environment in order to determine whether the proposed activities require assessment and approval under the *EPBC Act* due to the impact on the Swift Parrot. No referral has been made to date.

Approval of a building permit is required under the *Building Act* (2000), before works may commence on the property, no building permits have been issued for this property, except for one to do excavation work (Moore pers. comm. 2010). The planning permit expires on the 20th of May 2012 (Hobart City Council 2008b).

4.2.1.2 873 Sandy Bay Road

On the 22nd of June 2009 approval was granted for an additional house to be built on 873 to the south of the single house already present (Hobart City Council 2009).

A number of restrictions and conditions were attached to the planning permit, which included ensuring that the building designs minimise the chance of injury and death of birds as a result of collision to the satisfaction of the council (Hobart City Council 2009). Additionally the 2008 Bushfire Hazard Management Plan received by the Hobart City Council was to be implemented by the owner before occupation of the new dwelling and throughout the life of dwelling. The permit required the Plan be included in a Part 5 Agreement, and before a building permit is to be granted it is to be lodged with the Register of Titles (Hobart City Council 2009). This is the same BHMP as exists on lots 851 and 837, yet is only recorded on the title of these lots.

A search through the Land Titles Office, indicated a single Part 5 agreement was entered for 873 Sandy Bay Road; however it does not relate to a conservation issue. At present, one house and associated road work is under construction on this site.

4.3 Case Study 3 – Upgrade of Arthurs Highway

Fifty-eight referrals have been made to Environment Australia under the *EPBC Act* for projects that have the potential to have a significant impact on the Swift Parrot (Coombe pers. comm. 2010); this case study examines two of these referrals.

In 2002 the Tasmanian Department of Infrastructure, Energy and Resources (DIER), referred two associated developments for consideration for the *EPBC Act* assessment and approval process. The first project was the removal of trees between Sugar Loaf Road and Sommers Bay Road (Department of Infrastructure Energy and Resources 2002a) and secondly the upgrade of Arthurs Highway over Gunns Hill, between Tanner's Creek and Carlton River Valley (Department of Infrastructure Energy and Resources 2002b) (Figure 4.4).

These projects were in response to a number of road fatalities on the highway, which many attributed to the presence of large *Eucalyptus* trees on the road reserve (Department of Premier and Cabinet 2004). The first project involved the removal of trees greater than 300 mm in diameter within 5.5 m from the road edge to create a "recovery zone" in the road reserve, in order to reduce the safety hazard of large roadside trees (Department of Infrastructure Energy and Resources 2002a).

Figure 4-4. Location of Gunns Hill overtaking lane upgrade, Arthurs Highway, taken from Google Earth (2008)

The second project, the upgrades to the highway included the reconstruction of a bridge crossing, addition of overtaking lanes and the removal of trees to improve

sight distance for approaching vehicles (Department of Infrastructure Energy and Resources 2002b).

4.3.1 The Area

The forest communities found along highway are dominated variously by *E. obliqua, E. ovata, E. globulus* and *E. tenuiramis*. *E. ovata* was found on the western side and southern slopes of the highway and remnant grassy *E. globulus* found along the central parts (Pitt and Sherry 2002). Along the roadside, isolated individuals, small groups of trees and more extensive remnant stands were identified with a native vegetation understorey. The area of tree removal fell within the Sorell Planning Scheme as well as the Sorell Interim Order No.2 1990 and the Tasman Planning Scheme 1979, administered by the Tasman Council, and the land tenure was all road reserve. The area of upgrade fell solely within the Sorell Council Planning Scheme, and the land tenure was road reserve and private land, which was to be obtained by the State government (Pitt and Sherry 2002). A flora and fauna assessment performed in 2001, identified that the remnant habitat within the project area was a relatively significant local Swift Parrot foraging resource, but was not considered significant as breeding habitat (Pitt and Sherry 2002).

4.3.2 The Impact of the Projects

The *EPBC Act* referral document for the tree removal states 758 trees over a 69.15km stretch between Port Arthur and Sorell should be removed, from small groups, more extensive remnants and well as single trees. Of these 440 are considered to be of significant conservation value to the Swift Parrot as foraging habitat. This has been estimated to constitute between 0.6 and 1.0 ha loss of foraging habitat, of the 5920 ha of the remaining *E. globulus* and 1040 ha *E. ovata* in the south-east bioregion (Department of Infrastructure Energy and Resources 2002a). An assessment of the biological values of the roadside trees of the Arthur Highway, found that the removal of trees would have a significant impact on the *E. ovata/E. viminalis* forest communities and the habitat of the Swift Parrot, altering the structure and size of the remnant forests (Department of Infrastructure Energy and Resources 2002a). Yet the DIER (2002a) suggested it would not be prudent to conserve these

trees as they represent a significant safety hazard to those driving on the Arthur Highway.

The referral document for the upgrade and addition of overtaking lanes on the highway identified that there would be an impact on remnant *E. globulus* and *E. ovata* communities. Approximately 8,850 m^2 of *E. ovata* and 3,880 m^2 of *E. globulus* and an additional 6,700 m^2 of mixed species including *E. ovata* were to be cleared for the project (Department of Infrastructure Energy and Resources 2002b). This in effect equates to 1.95 ha of Swift Parrot Habitat over a 4.5 km stretch of highway. Of the 3340 $m^2$of forest communities considered significant that run adjacent to the highway, it was estimated 1950 $m^2$was to be destroyed (Department of Infrastructure Energy and Resources 2002b)

4.3.3 Legal Implications of Actions

Due to the removal of trees the project had to be referred to Environment Australia under the *EPBC Act*. Additionally a permit to "take" was not required under the *TSP Act* as the Threatened Species Unit, in the Department of Primary Industries, Water and Environment concluded that the impact of the tree removal did not constitute a significant impact on the Swift Parrot. However consultation with the Threatened Species Unit was recommended. A FPP was also not required under the *FPA* as an exemption exists under clause 17(6) for works undertaken on public roads.

4.3.4 Swift Parrot Compensation Programme

DIER, in recognition of the need to conserve the habitat of threatened species where feasible, whilst still maintaining its public charter for providing public infrastructure, developed a Swift Parrot Compensation Programme, created in conjunction with the Net Gain Programme developed by DPIPWE ((Department of Infrastructure Energy and Resources 2002c). The aim of the programme was to establish and maintain a net gain of habitat that precedes infrastructure developments on Tasmania's Highway system, for present and future use by the Swift Parrot. The aims of this programme were developed with the objectives of the Swift Parrot Recovery Plan in mind, in so much as to provide for a "demonstrable and sustained improved in quality of Swift Parrot habitat, to increase carrying capacity." The minimum habitat compensation

ratio adopted is 5:1 to areas adversely affected by developments in Tasmania, yet a larger ratio is preferred where possible under the programme (Department of Infrastructure Energy and Resources 2002c). The programme recognizes there is a need to re-establish areas of habitat in order to make amends for the loss of existing habitat through the replanting of trees in a new location that is suitable for the long term viability of the Swift Parrot. Furthermore it acknowledges the time lag between the usefulness of trees from the time of planting and their ability to be used as a foraging resource. Yet they theorize that the obtaining of unreserved land from private landholders is a viable mechanism for compensating potential habitat loss, despite the fact that it can create no more habitat (Department of Infrastructure Energy and Resources 2002b).

For the Gunns Hill overtaking lanes a ratio of 8:1 was adopted for the removal of the 1.95 ha localized trees necessary, which equates to 15.6 ha for reserved for habitat compensation. In regard to the trees removed for safety purposes six trees were to be planted for every one removed, equating to 6.0 ha or 4200 trees to be planted on suitable land. DIER agreed to a number of provisions in addition to the 4200 individuals, including the replanting of a corridor of approximately 1km in a 10m wide strip (1.0ha) of trees suitable for Swift Parrot foraging, as well as arrangements to be made with private land holders to secure a conservation covenant over approximately 20.0 ha of *E. globulus* and *E. ovata* woodland and finally a contribution to DPIWE's Net Gain Programme through a Swift Parrot habitat trust fund on private land for the conservation of an amount equivalent to 20.0 ha of high value foraging habitat. This equates to a habitat compensation of 47.0 ha for the 21.6 ha lost (Department of Infrastructure Energy and Resources 2002c).

4.3.5 The Decision and Outcomes

Notably a recommendation by North and Barker to retain the *E. ovata* and *E. globulus* trees on the road reserves behind safety guard rails, an option that had been successfully implemented in two instances in the same year near Lauderdale and Margate, was not adopted by DIER. This would have removed the need for *EPBC Act* referral for the tree removal activities. Yet as the referral document for the upgrade concluded that with the DIER Swift Parrot Habitat Compensation

Programme arrangements, the impact of the upgrade would not be significant, and the action set out in the referral did not constitute a controlled action within the meaning of the *EPBC Act*. The Minister on the 19th November 2002 concurred with this submission, and determined that the proposed upgrade was not a controlled action, so long as it was conducted in a manner as approved by the Department, and therefore did not require further scrutiny under the assessment and approval provisions of the legislation (Environment Australia 2002a). It qualified for this status, on the condition it implemented the Swift Parrot Habitat Compensation Programme and the Threatened Species Units Net Gain Programme in the fashion discussed above, as well as where possible and feasible, designing the highway to avoid the most significant areas of Swift Parrot Habitat.

The proposal for tree removal also contended that in consideration of the fact the route of the highway passes through more extensive tracts of forest which represent a more valuable foraging and nesting resource, and the trees to be removed represent only a small percentage of the trees in the area, and the removal of these trees would not compromise the availability of foraging resources for the Swift Parrot to an extent that it would affect the viability of the species, it should not be considered a controlled action. However on the 22nd August 2002, the Minister held that this proposal was in fact a controlled action, which would mean the project, would have to progress through the Federal EIA, and assessment and approval provisions of the *EPBC Act* (Environment Australia 2002b). However on the 14th of February 2003, this decision was revoked, and it was instead held that the proposed action was not a controlled action, so long as the habitat compensation conditions set out above were completed in various time frames no longer than 12 months, and that progress reports on the Native Habitat Compensation Programme be given to Environment Australia every three months, until the programme was completed to its satisfaction (Environment Australia 2003). The tree removal and replanting was to be completed by the end of 2003 and was officially opened on the 26th March 2004 (Department of Premier and Cabinet 2004).

4.3.6 Conclusion

This chapter has provided three case studies of Swift Parrot habitat removal in Tasmania and how the legislative framework is put into practice. It has examined the implications the presence of a threatened species had on forestry operations on public land, planning developments under local a council planning scheme and an infrastructure upgrade referred under the *EPBC Act*

Chapter 5 *E. globulus* removal in Hobart and Kingborough

5.1 Introduction

Peter Brown stated in his 1989 paper on the ecology and distribution of the Swift Parrot:

"The effects of development are clearly visible throughout the breeding range of the Swift Parrot from Recherche Bay in the far south through to St Helens and beyond in the north-east. Much of the coastal habitat of the swift parrot has been developed and altered in some way since the early years of the 19th century…"

Many authors agree with these sentiments that urban development is a key threatening process to the Swift Parrot population in Tasmania, as it removes key foraging and nesting trees. As a test of the effectiveness of legislative and administrative processes, this chapter documents the removal of mature *E. globulus* in and around Hobart since the enactment of threatened species legislation in Tasmania in 1995.

5.2 Methods

5.2.1 Study Area

The area selected for this study covered a majority of Hobart City, located on the western shore of the Derwent River, as well as the northern part of Kingborough, taking in much of the developing urban centres of Kingston and Blackmans Bay (Figure 5.1). This area was selected due to the presence of large numbers of trees of *E. globulus*, and the use of the area as key breeding habitat by the Swift Parrot.

5.2.2 Aerial Photographs

Aerial photographs taken in February 1997 were used to determine the distribution of large individuals (with greater canopy cover of greater than approximately 5m in radius) of *E. globulus* at a time close to the enactment of the Tasmanian *TSP Act* in

1995. Images sourced from Google Earth of the same areas dated between November 2005 and March 2008 were used to locate felled trees. The trees were easily identified from aerial images as *E. globulus* has a distinctively larger and darker canopy than other species. When in doubt as to the number of tree felled, due to the closed canopies of large stands of the *E. globulus*, the smallest number identifiable was selected, providing a conservative estimate. Once felled trees were identified, their suburb, municipality and reasons for removal were recorded. Reasons for removal were categorized as either tree removal associated with urban development, including subdivision and extension, or removal where no development was evident, presumably due to human safety reasons, improved view and other "inconveniences" associated with large eucalypts (Piech 2008).

Figure 5-1. Study area, 42 55'S, 147 20'E, taken from Google Earth (2008)

5.3 Results

There was a loss of 494 mature *E. globulus* in the study area between 1997 and 2005/8 (Figures 5.2-5.5). This accounts for around 0.2% of the estimated 300,000 *E. globulus* in south eastern Tasmania (Briggs 2004). Of these 494, 350 were cleared as a direct result of property development or subdivision, and the remaining 144 were removed from around existing properties, without any evidence of building. Two hundred and five trees were removed from Hobart, and 224 from Kingborough. The Hobart suburb of Mt Nelson had the most trees removed per suburb with 133, 117 of which were a result of new building developments. Also within Hobart 49 were removed from Sandy Bay, 13 from Lower Sandy Bay and 19 from Tolmans Hill. Within Kingborough Municipality boundaries 17 were removed from Taroona, 77 from Kingston, 29 were removed from Bonnet Hill, 50 from Marona Heights, and 39 from Blackmans Bay. Eighty-seven percent of trees removed from Kingborough were in developments or subdivisions, while the equivalent figure for Hobart was

75%.

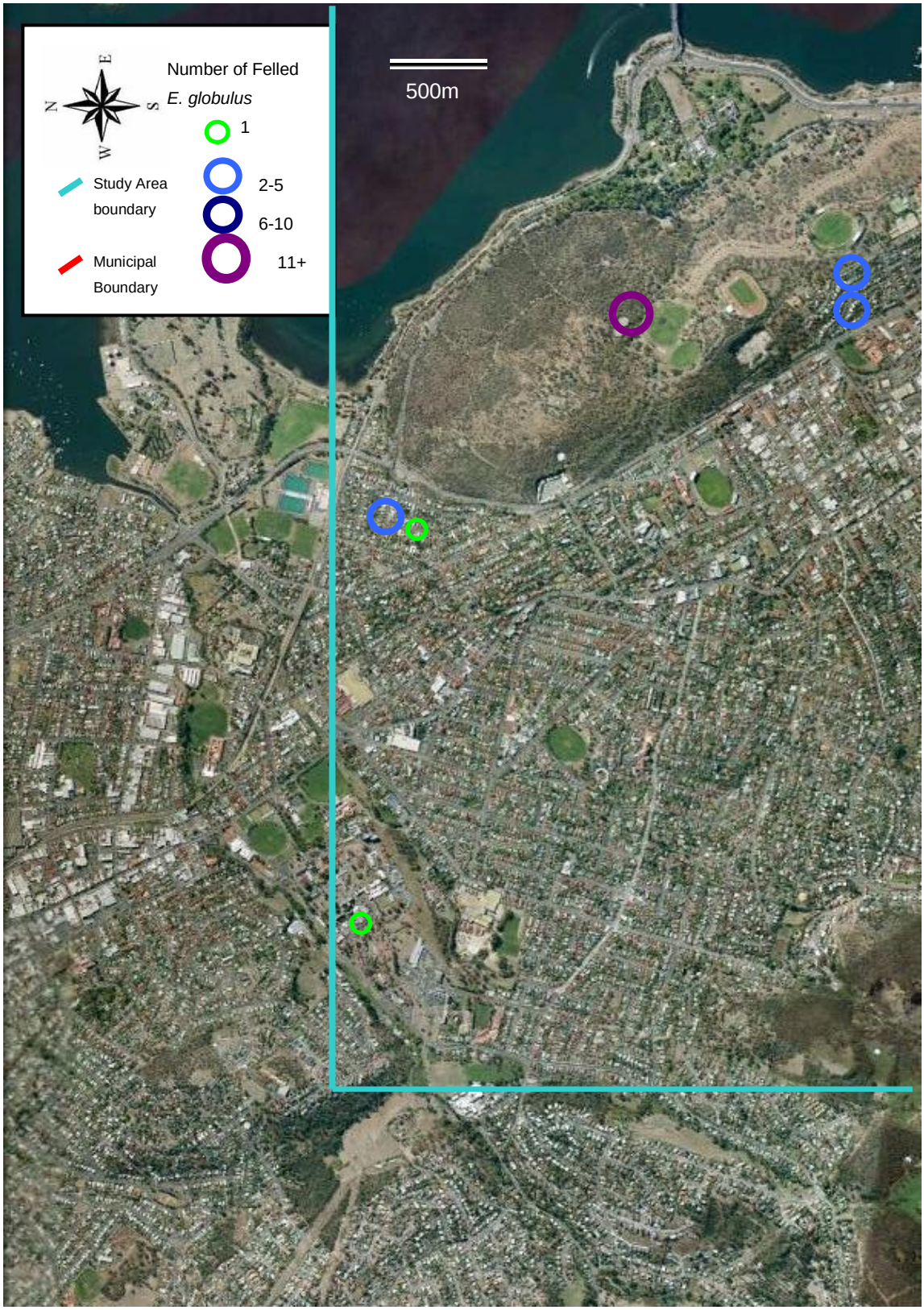

Figure 5-2. Felled *E. globulus* from the Hobart CBD to Hobart City Council's northern boundary between February 1997 and March 2008.

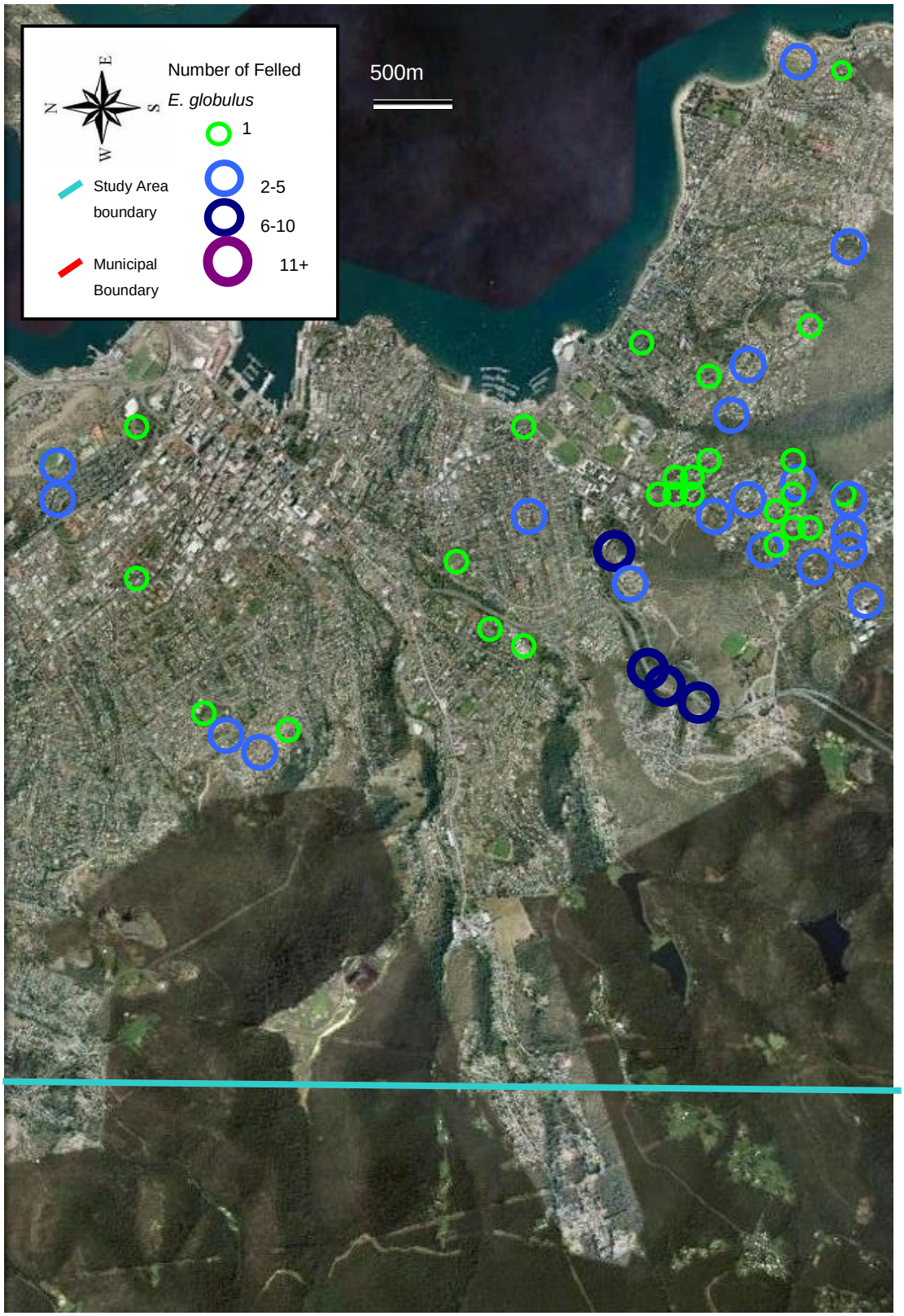

Figure 5-3. Felled *E. globulus* in Hobart City Councils suburbs north of Sandy Bay and South of the Domain, between February 1997 and March 2008

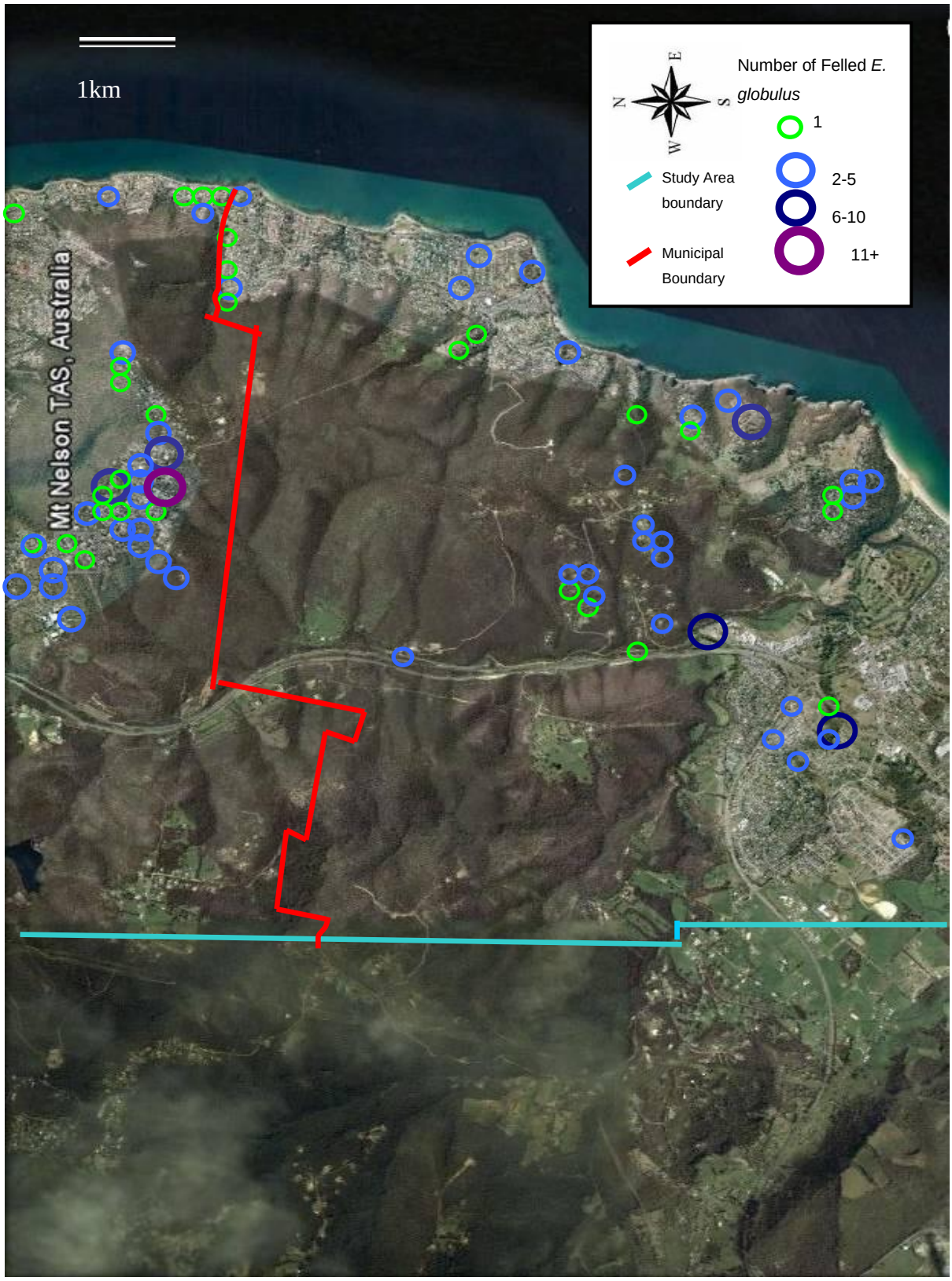

Figure 5-4 Felled E. globulus in Hobart suburbs of Mt Nelson and Sandy Bay, and the northern part of Kingborough Council, between February 1997 and March 2008

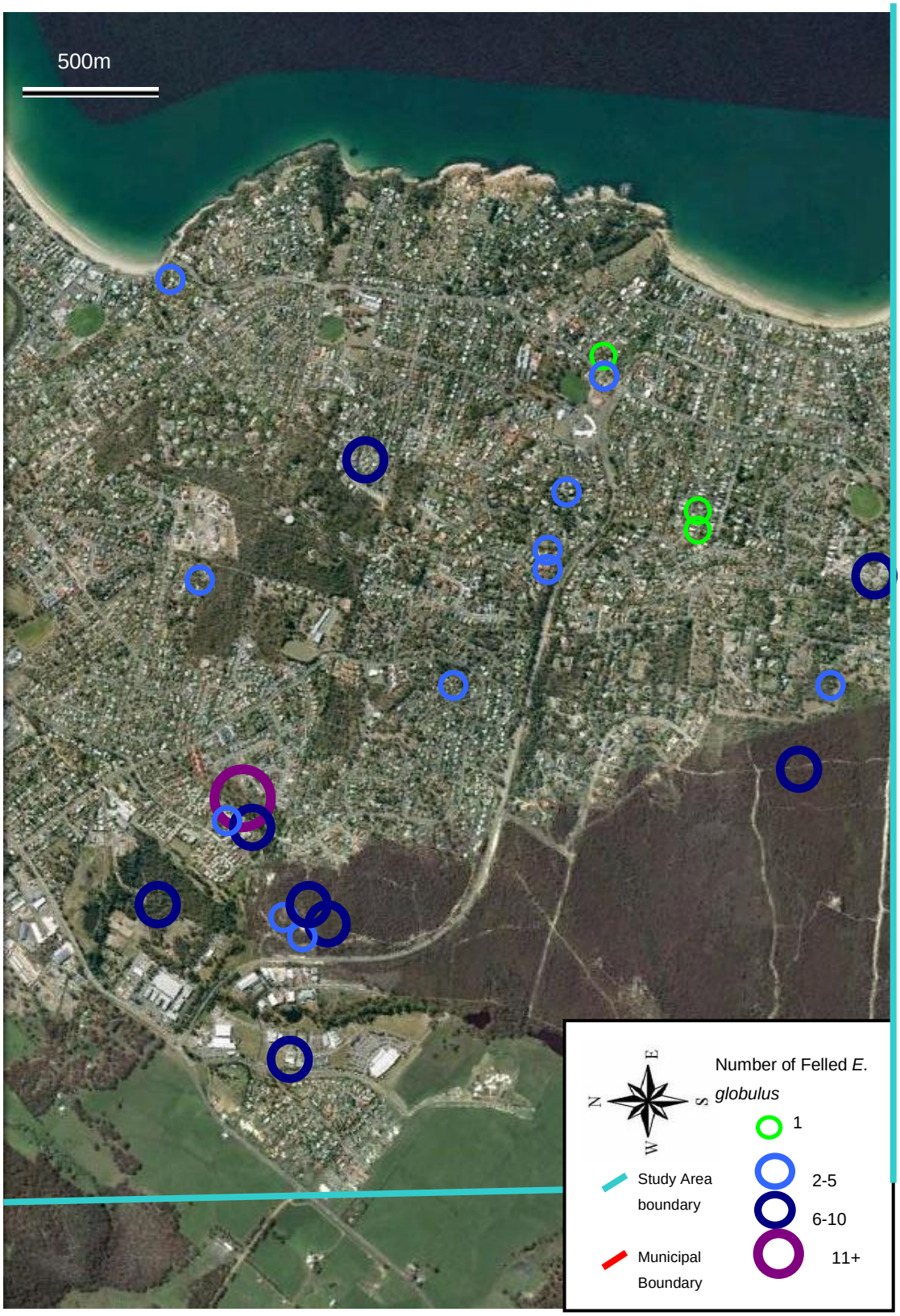

Figure 5-5. Felled *E. globulus* from Kingston, Kingborough Council from February 1997 to March 2008

5.4 Discussion

This chapter has demonstrated the localized removal of *E. globulus* has continued to occur within Swift Parrot habitat in south-eastern Tasmania, since the enactment of threatened species legislation in the State in 1995. In a majority of cases the reasons identified for these removals have been attributed to urban development.

Chapter 6 Discussion

6.1 Findings

The Swift Parrot is the most commonly cited species for referrals under the *EPBC Act*, none of which have been rejected. The present study has demonstrated the apparent reluctance of the Minister for Environment to reject developments outright due to its impact on a threatened species. The third case study of this thesis demonstrated that the removal of in excess of a 1000 mature *E. globulus* was not found to be a controlled action under the legislation, provided that it was offset by the reservation and replanting of trees elsewhere. Although the tree removal activity was initially found to be a controlled action, it was overturned after what appears to be additional monitoring added as a condition. Offsetting the loss of stands of disposed *E. globulus* with the promise to reserve/protect other areas containing the species appears to be growing in popularity, with the present study also showing how offset programs have been used to compensate for the removal of *E. globulus* for both State Government projects and local private developments.

The central piece of legislation in place in Tasmania is the *TSP Act* which provides a large number of tools to both protect and recover threatened species in the State. However a large portion of these tools have not been utilized at all to date, or have not been applied widely in the fifteen years of the legislation. Only 18% of listed threatened species in the state have a listing statement and 20% a recovery plan. The Swift Parrot has a recovery plan in place, yet it expired in 2005. The overall objectives of the recovery plans in place from 1997 to 2005, is to have the species down listed to IUCN vulnerable within a decade, and to achieve a demonstrable improvement in Swift Parrot habitat in order to increase carrying capacity. Neither of these objectives has been achieved to date, with the species number thought to be declining, and the extent of *E. globulus* continuing to retract across the state due to clearing, urban development and forestry operations. A number of strategies from old previous recovery plans designed to aid the recovery of the species have been implemented successfully, yet the 2006-2010 recovery plan is yet to be put in place. There are also a number of tools available under the *TSP Act* that have not been used

at all, either due to being impractical or inherently difficult to apply, or because more appropriate options are available. Included in the unused category is the declaration of critical habitats, land management plans, interim protection orders, and legal action against offenders. Considering there have been no prosecutions under this legislation, there is little motivation for landholders to ensure they take all actions necessary to ensure they do not knowingly disturb threatened species habitat, or even report their presence at all. As the legislation requires the individual to have knowledge of the presence of a threatened species, an obvious defence to the charge is ignorance. This caveat deters landholders from declaring the presence of threatened species on their property. Yet despite this, it is arguably not the Tasmania's threatened species legislation that it is the primary problem in maintaining the species and its habitat in the State.

Logging on both private and public land is regulated by the Forest Practices System, legislated by the *FPA* and *Forest Practices Regulations* (2007). There are deficiencies and loopholes in this system that have allowed Swift Parrot habitat to be removed in large tracts. For example, public infrastructure, utility developments, and maintenance of buffers around existing infrastructure are exempt from the provisions of the *FPA.* The third case study has shown that this exemption has the potential to allow thousands of *E. globulus,* and other habitat, to be removed without the need for an approved FPP. The loss of *E. globulus* is also occurring as a result of forestry operations in Tasmania. The first case study, on the Wielangta Forest case, has demonstrated that the interpretation of the present Tasmanian RFA, allows for governments and regulatory bodies to provide no more than a system to protect threatened species, even if it is blatantly obvious that the forestry operations are driving the species toward extinction. Management prescriptions put in place in the coupes discussed in this case provided minimal protection for the Swift Parrot habitat contained within, and according to expert witnesses, result in the loss of large areas of high quality habitat.

The present study has also shown a majority of the Swift Parrot foraging habitat in its breeding range is not found within formal reserves, leaving a lot of the protection of habitat to local councils. Yet the legislative framework in place under *LUPAA* does

not explicitly provide protection to threatened species, and another notable exclusion from the requirement of a FPP is clearing accompanied by a permit provided under *LUPAA*. A planning application will generally only have to be considered in regard to a councils planning scheme and the provisions set out under *LUPAA.* The planning schemes of Hobart and Kingborough both promote the retention of environmental values, including threatened species. The Hobart City Council for example has the discretion to refuse a permit in certain areas if the proposal is incompatible with the maintenance of the biodiversity of the area. The second case study has shown that Councils will consider the impact on threatened species, and the values of the surrounding habitat, yet planning approval decisions (particularly those referred to RMPAT) appear to focus more on other issues that are inconsistent with their planning scheme such as the proposed building design being contrary to zoning objectives and desired characteristics of the area. Vegetation assessments and environmental development planning comments for properties both recommend the retention of threatened species habitat and the redesigning of buildings to minimise bird strike, yet there is no legislative mechanism to ensure that this happens. The Hobart Planning Scheme provides a development will be approved if it does not adversely impact on threatened species, yet there is no definitive measure to determine adverse impact. Ideally, all development applications that may have an impact on the Swift Parrot or any of the other 500 threatened species in the State should be referred to the Threatened Species Unit for assessment and advice, but realistically speaking this would create an unreasonable workload for this poorly-staffed unit.

Chapter five of the present study has demonstrated incremental urban development over the last 15 years in Hobart and Kingborough has resulted in the loss of close to 500 mature nesting and foraging *E. globulus* trees. There were two main reasons for the removal of *E. globulus,* to make way for associated urban development, and clearing around houses. Tree felling around existing buildings is also removing key foraging and nesting sites for the Swift Parrot. Yet removal is permitted without a FPP when providing a reasonable buffer around an existing building for public safety and preventing damage to a building or fence. This exemption allows for a lot of trees to be removed in built up areas where Swift Parrots are known to forage in

breeding season. Furthermore, trees that are not considered vulnerable under the *Forest Practices Regulations* (2007) may be harvested so long as the total volume harvested per year is less than 100 tonne, or one ha, a FPP is not required. This would obviously exempt clearing from smaller domestic blocks. When a FPP is not required, as is the case here, a permit should be sought under the *TSP ACT* for the destruction of any threatened species habitat, yet this is clearly not implemented under the present framework, presumably also due to lack of resources, as hundreds of permits would need to be issued annually for the Swift Parrot alone. The Kingborough Council requires residents to apply for a permit to remove, injure or destroy any tree specimen over ten meters tall, or with a canopy spread over six meters. Furthermore for tree removal related to a development application one must identify the trees within three meters of the building, in order for council officers to assess whether the trees actually need removal. Trees removal in Kingborough without a permit incurs an on the spot fine. The Hobart City Council does not have planning control over the removal of individual trees, unless it is on the significant tree register. If it is on a site listed on the heritage register, the tree removal brings into force Schedule L of the Hobart City Planning Scheme "Bushland Management", or the retention of the tree is required as a condition of a planning permit (Moore 2010 pers. comm.). Yet there are exemptions to all of these in schedule I "land clearing" of the Hobart City Planning Scheme, including where clearing is accompanied by an approved permit for a development, maintenance or improvement of established gardens, or erecting a boundary fence. A breach of a planning scheme provision can result in civil enforcement action being undertaken under section 64 of *LUPAA* to counteract illegal removal in Hobart, but there are no provisions for on the spot fines by the Hobart City Council (Moore 2010 pers. comm.). As chapter five indicated, a similar amount of trees were removed in both municipalities, which may indicate neither system is effective at preventing the removal of large *E. globulus.* Yet Kingborough has seen a vast amount of development in the last fifteen to twenty years, and 87% of removals were directly related to development, compared to 75% in Hobart, perhaps indicating the former is better at preventing tree removal due to mere "inconvenience" reasons.

This study also looked into the use of legislation in Tasmania that peripherally relates the protection and recovery of threatened species in the state. Included in this list is the *NCA*, which provides for the reservation and acquisition of land, much of which preserves large tracts of Swift Parrot habitat. Similar to the *TSP Act* there have been no offences under this Act, yet this piece of legislation also provides for the creation of nature conservation covenants to protect certain biological values. To date there are 92 in place across the State that contain *E. globulus* and as case study number two shows the Act can be used to set aside a large portion of land to prevent it being developed on in the future. This tool allows conservation-conscious landholders to ensure the preservation of biological values after they have sold the property as the agreement runs with the title of the land. Covenanting can also be used as a bargaining chip for property development, increasing the total habitat protected across the species range.

6.2 Findings in context of existing literature

6.2.1 *EPBC Act* referral process

The enactment of the *EPBC Act* saw the introduction of a new assessment and approval process designed to protect matters of national environmental significance and promote ecologically sustainable development. The assessment and approval processes are seen as the key method of achieving the objectives of the Act, providing a "regulatory safety net" for listed threatened species (Macintosh 2004). Although the act minimizes the duplication of environmental assessment and approval at State and Commonwealth level the third case study demonstrated that in some projects, such as infrastructure upgrades, the requirement to refer the project to the Commonwealth is one of the few mechanisms in place to ensure a development does not have an adverse impact on a threatened species. The *EPBC Act* is criticized as failing to make a meaningful contribution to conserving biodiversity and protecting the environment (Macintosh 2004), with raw statistics on the limited number of refusals implying a failure in the system to protect matters of national environmental significance (Christoff 2002). Although reluctant to draw conclusions without a closer examination into the reasons behind the approvals, authors suggest the numbers alone are quite damning, implying ministerial discretion is undermining

the intent of the *EPBC Act* (Lambert 2004). As discussed above in the findings the two actions undertaken in the third case study were referred to Environment Australia and both were deemed not to be controlled actions. Habitat loss as a result of forestry, urban and infrastructure development all pose a threat to the Swift Parrot, particularly in situations such as case study three where there has been a disproportionately large loss of key foraging resources (Ford, Barrett et al. 2001). As was the case in the third case study a lot of referrals are deemed not to be controlled actions so long as they are carried out in a specified manner, commonly with an offset programme in place. Macintosh (2004) argues irrespective of the merits of an offsetting system, the decision of whether a development is a controlled cannot be determined on an offsetting programme as a condition. This argument is based on section 72(2)(b) which prevents a decision being based on any positive outcomes arising from the relevant action on a matter of national environmental significance and on section 77(3) that says conditions imposed on a controlled action decision must only relate to the manner in which the action is undertaken, which would exclude the action of planting trees, as it does not relate to the removal of trees (Macintosh 2004). Irrespective of the legitimacy of considering offsets in the assessment and approval process, offsetting is reducing the number of actions assessed and diminishing the process. Case study three provides an example of the splitting of a single development into separate parts for the referral process, the highway upgrade and the related tree removal. By dividing a development into stages, it reduces the likelihood of it being found to have a significant impact on a threatened species, and prevents the imposition of conditions on the project. This splitting of actions undermines the effectiveness of the process in achieving the objects of the Act (Macintosh 2004).

6.2.2 Biodiversity Offsetting

As a result of a growing acknowledgement of the adverse impacts of the continuing degradation of native vegetation, governments across Australia have introduced policies preventing net losses in native vegetation. Offsetting or biodiversity trading is a policy tool used to allow some clearing with the overall goal of no net loss (Gibbons and Lindenmayer 2007). It is based around the assumption that impacts

from clearing can be compensated or offset so long as sufficient habitat can be either reserved, restored or established elsewhere (Bedward, Ellis et al. 2009). Offsetting is increasingly promoted as a way to both promote conservation and development whilst resulting in no net loss, yet so far has been argued to have assisted development whilst causing biodiversity loss (Walker et al. 2009). Offsetting is a tool either approved or utilized by all levels of government in Tasmania to compensate the loss of Swift Parrot habitat being used in DIER' Swift Parrot Compensation Programme, and DPIPWE's Net Gain Programme. Yet as the population decline seen in the Swift Parrot demonstrates, large areas of forest and woodland in Tasmania have undergone extensive degradation and fragmentation, severely reduced the capability of the species movements to compensate for variations in food sources (Gartrell 2001). This indicates that there is no spare foraging habitat left in Tasmania to sacrifice for development. Literature suggests for there to be no net loss, there must be a gain compensating for removal, yet some programmes, including the one discussed in case study two and three, are based on a simple trade off between the area cleared and another area of already existing vegetation, as a result producing net loss (Carruthers and Paton 2005). The option to compensate the loss of one ha of forest with the reservation of five elsewhere does not increase the available foraging resource for the species; it reduces it by one. Although it is a noted problem with protecting the species habitat in Tasmania that over 80% of *E. globulus* and 66% of nesting sites in the State are unprotected on private land, and the reservation of this land is key to the long term survival of the species, the loss of any habitat has an immediate impact of reducing already limited stocks. So the offsetting the loss of one lot of trees with the reservation of another that a species already uses, has little practical merit in the short term. In circumstances where offsetting does result in gains to compensate for the loss of cleared vegetation, these gains are criticized as not truly being equivalent to the loss (Hilderbrand, Watts et al. 2005). This is particularly true when lost vegetation is 'compensated' by planted trees. Brereton et al. (2004) suggest that tree planting ensures a continual supply of foraging and nesting sites for species such as the Swift Parrot. However, Wilkins et al. (2003) have found that although there are environmental benefits, planted trees do not perform the same tasks as established existing vegetation. The DIER compensation programme also recognizes the need to

re-establish new areas of habitat by replanting suitable habitat in areas that are suitable for the long term survival of the species. They implemented this in the third case study by replanting 5200 trees, to partially compensate for the trees removed. As with offsetting with the reservation of previously unprotected land, although this ideas has merit in that it will be of benefit to the long term survival of the species it does little for the immediate needs of the species. It takes decades for *E. globulus* to mature to an extent that they are a useful foraging resource and produce nectar, and over 100 years for it to be suitable as a nesting site. Cunningham et al. (2007) found that planted trees up to 20 years old were not an adequate substitute for native mammals and reptiles in comparison to remnant native vegetation. This type of compensation is also criticized for the time lag between loss and apparent gain (Bedward, Ellis et al. 2009), resulting in a break of the resources continuity (Gibbons and Lindenmayer 2007), with the potential for detrimental consequences to affected species (Manning et al. 2004). The danger is that the appeal of the long term benefits of improved habitat carrying capacity will distract from considering whether a species can survive the process of obtaining these results (Vesk and Mac Nally 2006), which may be the case in the situation of the Swift Parrot and the replanting of *E. globulus* in case study three.

In order for trading to be viable, commodities must be simple and interchangeable, yet when trading is applied to biodiversity the currencies and restrictions required to protect are difficult to measure and often not considered to be interchangeable Walker et al. (2009) suggest that the interests of biodiversity protection are bound to fall by the wayside to the motivations of resource development. This appears to be the case with the third case study, the upgrade of the Arthur Highway. The Minister initially deemed the project to be a controlled action and likely to have a significant impact on the Swift Parrot, yet this decision was overturned, despite the same agreement to offset the felled trees in place, the only additional condition appearing to be added reporting and monitoring of the project. Public infrastructure upgrades are always going to have to occur, and in situations such as case study three, this may occur in areas of significant foraging habitat of threatened species, the priority of the former apparently trumping the later.

The delivery of no net loss through biodiversity trading or offsetting is improbable and technically unrealistic, and has been suggested to be "symbolic" but having the potential to hide biodiversity loss and reduce the desire for action Walker et al. 2009). Despite these criticisms, some authors suggest that offsetting can still be a useful policy tool for regulating land clearing, but this is only if a number of criteria are met (Gibbons and Lindenmayer 2007). One of these criteria may pose a challenge in the application to the removal of foraging and nesting habitat of the Swift Parrot in Tasmania, which is that regulators must ensure clearing does not constitute an immediate risk to species. The results of the present study suggest that biodiversity offsetting has been inappropriately used in Tasmania.

6.2.3 Regional Forest Agreements and threatened species protection

As case study one has demonstrated there are a number of deficiencies in the protection of threatened species in the present Tasmanian RFA. This finding is consistent with two independent reports released on the *EPBC Act* in 2009. The Senate Environment Committee (2009) held as the RFA system presently operates, "neither transparency nor accountability may be adequately being delivered," and that the Wielangta case has demonstrated harmful actions toward threatened species may be consistent with the RFA, and the RFA provides less protection than the *EPBC Act*. An independent review of the *EPBC Act* by Dr Hawke also held that the law as it stands at present is insufficient in protecting threatened species from forestry operations (Hawke 2009). Church's (2009) analysis of the Wielangta case suggested the present system allows for State Governments and regulatory bodies such as Forestry Tasmania to provide no more than a system to protect threatened species (Church 2009). Management prescriptions, designed to protect features of threatened species habitat within forestry coupes, have been argued to fail to achieve satisfactory outcomes in the landscape (Blakers and Crawford 2008) and were ineffective in protecting habitat even when they were incorporated in FPP (Saunders, Brereton et al. 2007). Furthermore as no landscape scale approach exists (Wilkinson pers. comm. in Blakers and Crawford 2008), preferring to rely on a coupe by coupe assessment, this creates an unmanageable workload for the Authority, Forest

Practices Officers and Threatened Species Unit (Blakers and Crawford 2008). Further the degree to which prescriptions are actually followed is dubious (Koch 2007). Duhig et al. (2000) held that generally habitat clump retention met the prescribed guidelines, yet in contrast to this Munks et al. (2004) found the management prescriptions for Swift Parrot foraging habitat to be poorly met, with only 16% of the clumps retained containing between 2-3 mature *E. globulus*, which indicates that clumps were not targeting the trees required (Koch and Woehler 2007).

6.2.4 Local Government and Threatened Species Legislation

The responsibilities flowing from implementing threatened species legislation are not thought to be a high priority for local governments, often due to a lack of resource flowing from higher levels of government (Lambert 2004). The increase in responsibilities for local councils in recent decades, particularly in the areas of environmental management and protection, comes at a substantial cost, resulting in local governments failing to effectively engage with threatened species legislation (Lambert 2004). Lambert (2004), illustrated how the threatened species legislation in NSW stood little chance of being the prevailing interest of a local council, when the conservation of threatened species was pitted against development. Tree removal trends documented in chapter five, support this argument, with a key foraging resource being lost in favour of development. Farrier et al. (2007) suggested there were parts of the urban regulatory regime that bias decisions toward pro-development outcomes, and ignored the ecological sustainability of the project. This is attributed to the fact biodiversity is merely one of many competing issues that must be considered by planning authority when determining the success or otherwise of development application. This system reflects a "lukewarm commitment" to encourage ecologically sustainable development, rather than truly ensuring it as an outcome (Farrier, Kelly et al. 2007). Kelly and Prest (2000) likewise suggested that threatened species legislation was placing major development control responsibilities on to local governments, and legislation was not guaranteeing conservation-friendly outcomes in the landscape. This appears to be the case in Tasmania, with greater responsibility being placed on councils to take into account the impact of

development on threatened species, but with inadequate resources to realistically achieve this across the board.

Enforcement at council level is another area where lack of resources is thought to undermine the effectiveness of conservation measures implemented through planning authorities (Feehley 2005). There are limited enforcement options available to local councils under *LUPAA*, compared to other legislation such as the *Environment Management and Pollution Control Act* (1994), which is preventing the authorities from protecting threatened species and the natural environment effectively (Feehley 2005). Civil enforcement is seen as one method of ensuring compliance with planning permits or of appealing the issuing of inappropriate permits (Feehley 2005) yet this would be far to costly for councils to follow up on effectively. The second cases study demonstrated how appeals to RMPAT can result in a more conservation friendly outcome, including the protection of threatened species such as the Swift Parrot. Yet Kelly and Prest (2000) suggest that planning appeal courts are under considerable political pressure to give equal consideration to socio-economic and environmental considerations in coming to their decisions, viewing the court's influence to merely modifying the impact. The result of this situation is a structural bias in the legislation toward proponents and development. Kelly and Prest (2000) also argue that the use of the zoning system only reinforces this pre-existing bias toward development approval, as a result of the influence of past practice.

Ongoing development within a number of Hobart suburbs is resulting in extensive tree loss, particularly on private land (Piech 2008). Large numbers of mature eucalypts are being removed from suburban gardens, in preference for smaller garden plants, primarily for safety reasons and the inconvenience of having large trees (Mallick, James et al. 2004; Piech 2008). Landsat satellite data taken between 1994 and 1999 showed extensive fragmentation of native vegetation in and around Hobart, much of which was attributed to new housing development (Resource Planning and Development Commission 2003a). The Resource Planning and Development Commission estimated around 805 ha of priority forest vegetation were removed in the Hobart area in the decade to 2002 as a result of housing developments (Resource Planning and Development Commission 2003b). Piech

(2008) found that large suburban eucalypts flowered more intensely than their bush counterparts, making them a reliable foraging resource for the endangered Swift Parrot. Thus, the removal of trees and forest on the suburban margins of Hobart may have significant impact on the species.

In the past the Hobart City Council has approved subdivisions with the intent of maintaining the surrounding bushland values, yet subsequent to this the Council has admitted it did not reach these expectations as a result of the planning system and the challenges of conflicting issues and interests (Resource Planning and Development Commission 2003c). The development of any land from native bush to urban sprawl is a significant change in the landscape and can have a large impact on remnant vegetation, threatened species and communities as well as landscape values generally (Resource Planning and Development Commission 2003c). Conflicting objectives resulting in diminished natural values include the need to remove understory in order to establish a bushfire hazard reduction zone with retaining native vegetation (Resource Planning and Development Commission 2003c). This appears to be the case with case study two, where a number of *E. globulus* had to be removed in order to make way for the bushfire management zone, and as chapter five demonstrated with the continued urban spread in Hobart and Kingston into the surrounding bush, conflicts with urban design, liveability, bushfire hazard protection and retaining environmental values is clearly an extensive issue. A continued expansion of fringing settlements in bush suburbs is likely to place added pressure on existing environment values (Hickie 1998). A continued loss of suburban trees as evidenced here, can result in the incremental loss of critical habitat for threatened species and reduces connectivity between remnant fragments (Piech 2008). In this situation it is likely to reduce habitat quality for species such as the Swift Parrot, by reducing the availability of nectar and pollen (Swift Parrot Recovery Team 2001).

6.3 Recommendations

This study has a provided an insight into the workings of threatened species legislation the impact on the landscape, and the Swift Parrot and its habitat. As a result a number of recommendations are made to improve the system which is supposed to provide protection for the Swift Parrot.

6.3.1 The *EPBC Act*'s Management of Threatened Species

The treatment and protection of threatened species under the *EPBC Act* needs reform. At present the Act provides little more than a protocol by which approval is granted. The assessment and approval provisions need to be enforced more forcefully in order for the environmental objectives to be achieved (Macintosh 2004). This may include requiring developments to be assessed as a whole and not allowing them to be submitted in smaller parts, so the true impact on matters of nation environmental significance can be assessed, which may also curb the problem associated with cumulative impacts of a large number of developments over vast distances on threatened species, particularly migratory species such as the Swift Parrot (Saunders, Brereton et al. 2007). Reform of the present interpretation of "significant impact" under the legislation should lower the threshold for 'significance'.

The reconsideration of the use of offsetting to determine whether a proposed development constitutes a controlled action, particularly before it has been established conclusively if such programmes are effective when applied to nomadic species like the Swift Parrot is an essential reform of the *EPBC Act* process.. Also, additional triggers for the assessment and approval process could be implemented, such as a greenhouse trigger, and a broad scale clearing trigger to ensure indirect threats to the survival of threatened species are considered. Finally there are also a large number of exemptions from the *EPBC Act* which reduce the scope of the assessment and approval process, including forestry operations conducted under a RFA.

6.3.2 The RFA and Forestry in Tasmania

As discussed the Tasmanian RFA as it presently stands provides for no more than a system to protect threatened species. In order to protect threatened species in Tasmania's forests, many argue that forestry operations conducted under RFA's should not be exempt from the assessment and approval process of the *EPBC Act*, as the alternative CAR system is not adequately protecting species. Should this option

not be adopted, the system in place needs reform. Management prescriptions adopted in coupes do not sufficiently protect high quality Swift Parrot habitat and nesting trees. Guidelines for the identification of foraging habitat and nesting trees need to be clear and concise to ensure they are adhered to and therefore improve their effectiveness (Koch 2007).

It has been suggested that the RMPS should be extended to include forestry operations in Tasmania, to include it under the sustainable development objectives of the system that applies to the rest of the State. This would result in the repeal of section 20(7) of *LUPAA* which prohibits a planning scheme from applying to forestry operations (Feehley 2005). To improve transparency within the forest practices system, the present position of right appeal to a FPP being exclusively limited to forestry proponents should be modified to extend to third parties (Feehley 2005). In addition to these measures in State Forests there is a need for more effective management of native vegetation on private land, the primary responsibility of which falls to Local Councils.

6.3.3 Local Planning Authority Management of Threatened Species

A number of recommendations can be made to ensure a more thorough to threatened species by councils. A strategic regional planning approach being implemented to oversee all new housing developments (Resource Planning and Development Commission 2003c) might make species conservation more effective. Such a body operating over a number of municipal boundaries would help curb the incremental and cumulative impact on threatened species habitats across a bioregion, and would be most effective if it had representatives from relevant councils as well as resource management groups and government departments (Feehley 2005). This approach would work toward negating problems in information sharing between Government departments and councils (Feehley 2005). This idea is supported by section 21 of *LUPAA* which suggests that planning schemes, as far as practical should be consistently applied areas across administrative boundaries. To date this section has had little application, yet may be assisted by the introduction of this body, which

should enable planning to occur appropriately in a way that prevents native vegetation clearance and preserves biological values (North 2000).

In order to aid the body to make appropriate planning decisions, a planning directive on native vegetation management should be introduced in order to provide a consistent format to be adopted under all planning schemes across the state. This would provide a strategic and consistent approach to the issue across the State, which would bind all councils or planning bodies to implement it.

To ensure the long term conservation of the Swift Parrot, it is important to retain the small remnant and individual *E. globulus* trees (Brereton, Mallick et al. 2004) as well as large tracts of forest. Continued tree felling, particularly on private properties, requires more effective management. The exemptions provided in the *Forest Practices Regulations* (2007) allowing *E. globulus* to be removed without a FPP, should be removed. Large eucalypts are being removed for suburban areas under the excuse of safety, yet Piech (2008) suggests that the real reasons may be closer to mere inconvenience. An application should be lodged with a local planning body for the removal of vegetation significant to a threatened species, including information on the distance to buildings, age if known, and any other information pertinent to ascertaining whether the removal is actually necessary. This assessment should go ahead irrespective of any exemptions, which appear to be providing too many options to remove trees. This should be backed with appropriate enforcement options for non compliance, preferably on the spot fines as opposed to litigation to avoid a backlog of cases. Furthermore to ensure planning decisions are made on a fully informed basis, expert advice from various government agencies should be sought on issues such as whether there is likely to be a significant impact on a threatened species or community.

Ideally a species impact statement should be submitted with a planning application, as is the requirement in some States of Australia (Kelly and Prest 2000). This statement would provide a detailed assessment of the likely impact of a proposed development on a threatened species, and aid planning authorities who have been accused of lacking in-house expertise in the area (Kelly 1998). Although environmental assessments may be regularly employed and referenced before a

planning permit is issued, it is not a requirement under any regulations, and should therefore be incorporated into *LUPAA*, as it is in Queensland under the *Integrated Planning Act* (1997) (Qld) (Feehley 2005Feehley 2005).

Finally, as the Resource Planning and Development Commission Tasmania (Resource Planning and Development Commission 2003b) have admitted, the conservation of native vegetation depends largely on the approach adopted by property owners. Therefore education may play a role in preserving threatened species habitat from the impact of private landholders, if it were able to convey to them the importance of conserving native vegetation to those ignorant. This may play a role in reducing instances of non-compliance should the legislative framework be strengthened, or curbing the high rate of removal in the suburban context either way. This option will not work on its own, however, and should be introduced as part of a wider strategy.

6.4 Conclusion

Although it is clear the Swift Parrot, and threatened species generally, would be worse off without the present framework, substantial improvements should be made to prevent species decline to eventual extinction. These improvements include;

- Ensure *EPBC Act* referrals are assessed as a whole project rather than as a number of smaller projects.
- Reform of the definition of "significant impact" under the *EPBC Act* to include cumulative impacts, and to prevent offsetting programmes being relied on too heavily in determining this impact.
- Remove the exemption provided for RFA in the *EPBC Act* from the Act's assessment and approval process.
- Reform to the forestry management prescriptions pertaining to Swift Parrot habitat.
- Remove the exemption under section 20(7) of *LUPAA* from forestry operations from the Resource Planning and Management System.
- Introduction of a regional planning body to ensure a consistent approach is applied across a bioregion.

- Introduce a planning directive on native vegetation retention in Tasmania.
- Introduce an assessment process to determine the necessity of tree removal, and remove existing exemptions from this process and introduce significant financial penalties for non-compliance with this process.
- Legislate the requirement for environmental assessments to be conducted for new developments, including the need for a species impact statement, and seeking detailed expert advice from external government bodies.
- Ensure education programmes are operating in bushland suburbs on the importance of conserving remnant native vegetation in the area.

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